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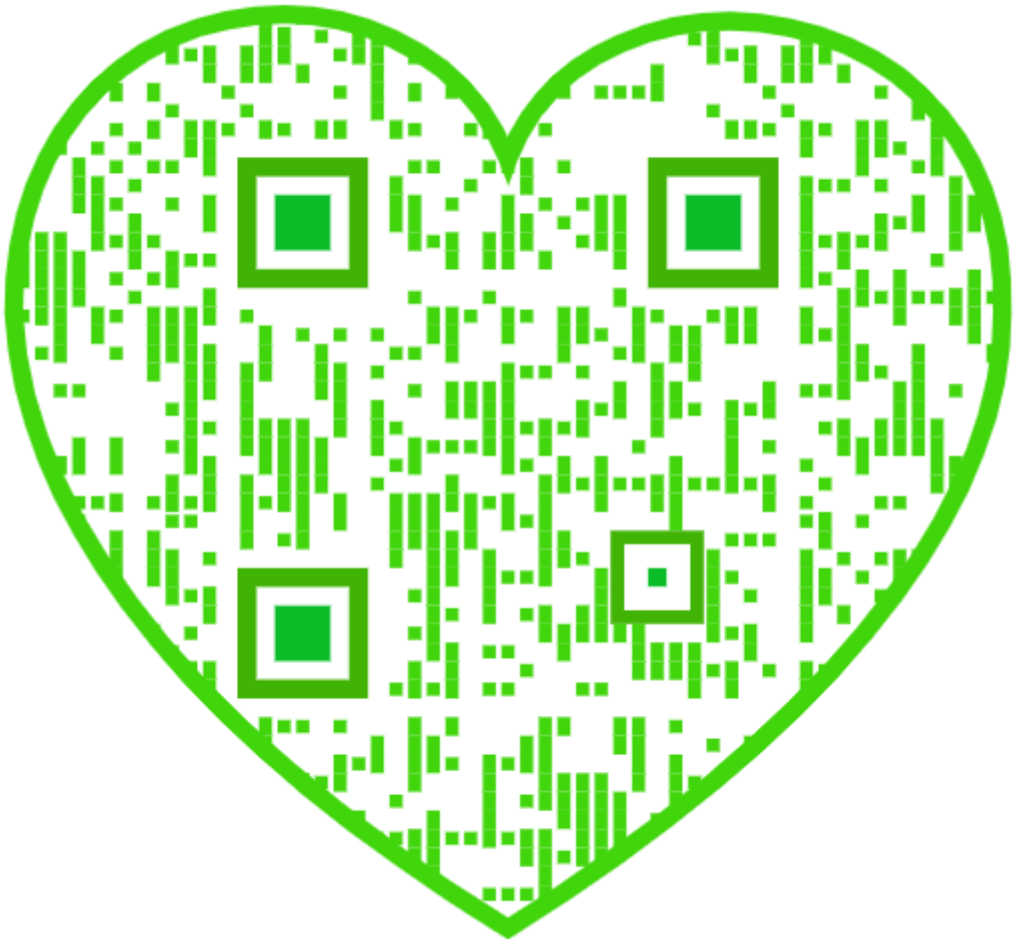

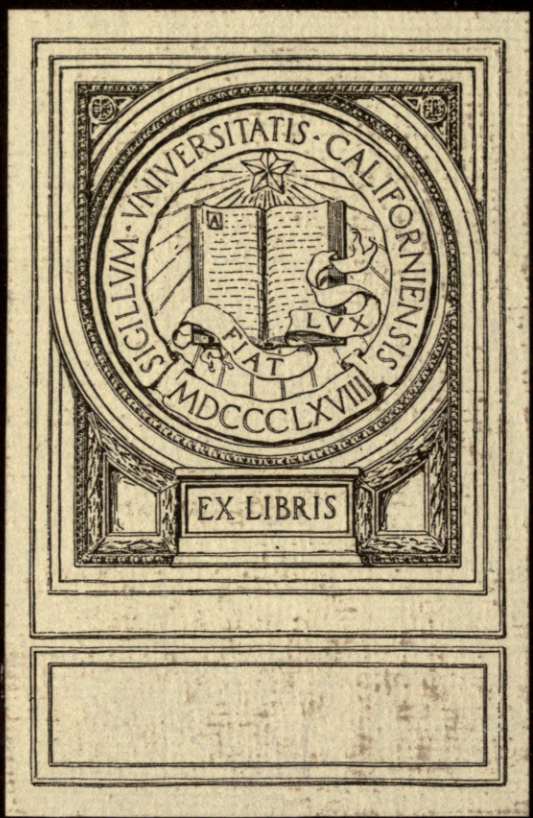
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PROPERTIES OF
STEAM AND AMMONIA

BY

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FIRST THOUSAND

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A.S.R.

PREFACE

A TABLE of the thermal properties of a vapor should possess two characteristics, consistency and accuracy. A table is thermodynamically consistent when the tabular values are obtained from equations that are properly connected by the necessary thermodynamic relations, such as the Clausius and Clapeyron relations; it may be considered accurate if the calculated values show satisfactory agreement with trustworthy experimental data.

The older tables of the properties of steam were neither consistent nor accurate. The tabular values were calculated from empirical formulas based chiefly on Regnault's data, and the necessity of consistency was not recognized. Two sets of tables have been based on the general theory developed by Callendar. These are absolutely consistent, but in the light of the knowledge acquired from the Munich experiments, they can no longer be regarded as accurate. In certain tables that have appeared recently have been embodied the results of the Munich experiments and also the researches of Dr. Davis on the total heat of steam. These tables are undoubtedly far more accurate than the earlier tables, but, having a more or less empirical basis, they are not rigorously consistent.

The tables of the properties of saturated and superheated steam here presented are based on a new formulation the essential features of which are discussed in the first section of the book. A more complete exposition will be found in Bulletin No. 75, Engineering Experiment Station, University of Illinois. The new theory correlates perfectly the experiments on the volume and specific heat of superheated steam; it gives values of the heat content of saturated steam that agree with those deduced by Davis from the throttling experiments; and, in general, it meets satisfactorily all the tests furnished by the available experimental evidence. The tables derived from the formulation are necessarily consistent, and they are at the same time extremely accurate.

The tables of the properties of ammonia are based on a formulation worked out by Mr. W. E. Mosher and the author. (Bulletin No. 66, Eng'g Exper. Station, Univ. of Ill.) Since, in the case of ammonia, the experimental evidence is far from complete, the formulation is regarded as only tentative, and the tables will perhaps require revision as further experiments are made.

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Several supplementary tables have been included. Of these, Table 6, Mixtures of Air and Water Vapor, will be found specially useful in connection with problems that involve hygrometric conditions.

The Mollier diagrams for steam and ammonia can be used as a substitute for the tables in the approximate solution of certain classes of problems. The use of the diagrams is illustrated by the examples on pages 27 and 28.

The author acknowledges his indebtedness to Mr. W. E. Mosher for his cordial consent to the use of the ammonia tables; and to Professors L. A. Harding and A. C. Willard for many valuable suggestions.

G. A. GOODENOUGH.

URBANA, ILL., *June*, 1915.

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NOTATION

The symbols given below are used throughout the preliminary discussion of the properties of vapors, and in the tables. In the selection of symbols the following principles have been observed. 1. The prevailing usage of recent writers on thermodynamics, for example, Bryan and Planck, has been followed. 2. In the case of magnitudes proportional to the mass of the medium under consideration, as volume, entropy, energy, small (lower case) letters are used to represent the value per unit weight. 3. The liquid state is characterized by a symbol with a prime, and the state of saturated vapor by a double prime. Thus s' and u' denote respectively the entropy and energy of the liquid, s'' and u'', the same properties of the saturated vapor.

J = mechanical equivalent of heat

$A = \frac{1}{J}$, reciprocal of mechanical equivalent

t = temperature on F. or C. scale

T = absolute temperature

p = pressure

v = volume of unit weight (1 lb.) of fluid

$\gamma = \frac{1}{v}$ weight of unit volume

c_v = specific heat at constant volume

c_p = specific heat at constant pressure

u = intrinsic energy per unit weight

q = heat absorbed by fluid per unit weight

q' = heat of liquid

q'' = total heat of saturated steam

i = heat content = $u + Apv$

r = latent heat of vaporization

$\rho = r - \psi$ = internal latent heat

$\psi = Ap\,(v'' - v')$ = external latent heat

s = entropy

μ = Joule-Thomson coefficient

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Properties of Steam and Ammonia

THE THERMAL PROPERTIES OF STEAM

Experimental Data. — Recent experimental investigations of the various properties of saturated and superheated steam have furnished data of a high degree of accuracy covering nearly every phase of the subject. The following is a summary of the more important of these investigations.

1. The relation between the pressure and temperature of saturated steam has been established definitely by three series of experiments made respectively by Holborn and Henning, Holborn and Baumann, and Scheel and Heuse. The three series taken together cover the range 32° F. to the critical temperature. These experiments were conducted at the Reichsanstalt with all the resources afforded by modern apparatus and methods of precise measurement.

2. The relation between volume, pressure, and temperature of superheated steam has been determined by the experiments of Knoblauch, Linde, and Klebe at the Munich laboratory. These experiments afford satisfactory data for the range of pressure and superheat covered.

3. A number of experiments have been made to determine the specific heat of superheated steam. Of these, the experiments conducted in the Munich laboratory, first by Knoblauch and Jakob and afterward by Knoblauch and Mollier, are justly accepted as the most reliable. Similar experiments covering a wider range of pressure are being made by Lanz and Schmidt.

4. The direct experiments of Griffiths, Joly, Smith, Henning, and Dieterici furnish data on the latent heat of saturated steam.

5. The variation of the specific heat of water has been the subject of several investigations. For the range 32°–212° F. the experiments of Barnes have been verified by those of Callendar, and they are generally accepted. Above 212° F. precise measurements of this important property are lacking. The only available experiments are those of Regnault and Dieterici, and neither of these can be accepted as thoroughly reliable.

6. Four sets of experiments on the throttling of steam by Grindley, Griessmann, Peake, and Dodge, respectively, furnish valuable data that may be used for various purposes.

Development of a General Theory. — The various thermal properties of a vapor are related through well-known thermodynamic laws. Thus the Clausius relation

$$\left(\frac{\partial c_p}{\partial p}\right)_T = -AT\left(\frac{\partial^2 v}{\partial T^2}\right)_p$$

connects the specific heats and volumes of the superheated vapor; and the Clapeyron equation

$$r = AT(v'' - v')\left(\frac{dp}{dT}\right)_{sat}$$

expresses a relation between the latent heat r, temperature, change of volume $v'' - v'$ during vaporization, and the derivative $\frac{dp}{dT}$ of the pressure-temperature function.

A satisfactory formulation of the properties of a vapor therefore involves two processes. 1. The establishment of equations for the various properties that represent accurately the most reliable of the experimental data. 2. The correlation of such equations through the thermodynamic laws. If such correlation can be effected without sacrifice of accuracy, the resulting formulation will have the equally essential attributes, accuracy and consistency.

The experimental evidence summarized in the preceding section is sufficiently extensive and trustworthy to justify the conclusion that a satisfactory formulation of the properties of water vapor may be worked out; and in the following sections is described the development of a consistent theory that apparently gives with extreme accuracy the properties of superheated and saturated steam over a range of pressure and temperature far wider than the range employed in technical applications.

Pressures and Temperatures of Saturated Steam. — The early experiments of Regnault have been superseded by the recent experiments conducted at the Reichsanstalt. Each of the three series of experiments conducted covered a different range of temperature. Scheel and Heuse's * experiments covered the lower range 0–50° C. (32°–122° F.), Holborn and Henning's † the range 50°–200° C. (122°–392° F.), while Holborn and Baumann's ‡ experiments extended from 200° C. to the critical temperature.

The values of the saturation pressure as deduced from the respective sets of experiments are given in the following tables. In the third table the values are not those given by Holborn and Baumann but values deduced therefrom by Prof. Marks.§

* Annalen der Physik (4), Vol. 31, pp. 715–735, 1910.

† Annalen der Physik (4), Vol. 25, pp. 833–883, 1908.

‡ Annalen der Physik (4), Vol. 31, pp. 945–970, 1910. See also articles by Risteen: The Locomotive, Vol. 26, pp. 85, 183, 246; Vol. 27, p. 54; Vol. 28, pp. 88, 118.

§ Proc. A. S. M. E., Vol. 33, p. 572.

SCHEEL AND HEUSE

Temp. ° C.	Pressure in mm. of mercury									
	0	1	2	3	4	5	6	7	8	9
0	4.579	4.926	5.254	5.685	6.101	6.543	7.014	7.514	8.046	8.610
10	9.210	9.845	10.519	11.233	11.989	12.790	13.637	14.533	15.840	16.481
20	17.539	18.655	19.832	21.074	22.383	23.763	25.217	26.747	28.558	30.052
30	31.834	33.706	35.674	37.741	39.911	42.188	44.577	47.082	49.708	52.459
40	55.341	58.36	61.52	64.82	68.28	71.90	75.67	79.62	83.74	88.05
50	92.54	.....	.....	.....	.....	.....	.....	.....	.....	.....

HOLBORN AND HENNING

Temp. ° C.	Pressure in mm. of mercury				
	0	2	4	6	8
50	92.3	101.9	112.3	123.6	135.9
60	149.2	163.6	179.1	195.9	214.0
70	233.5	254.5	277.1	301.3	327.2
80	355.1	384.9	416.7	450.8	487.1
90	525.8	567.1	611.0	657.7	707.3
100	760.0	815.9	875.1	937.9	1004
110	1074.5	1149	1227	1310	1397
120	1489	1586	1687	1795	1907
130	2026	2150	2280	2416	2560
140	2709	2866	3030	3202	3381
150	3569	3764	3968	4181	4402
160	4633	4874	5124	5384	5655
170	5937	6229	6533	6848	7175
180	7514	7866	8230	8608	8999
190	9404	9823	10256	10705	11168
200	11647	12142	12653	.....	.....

HOLBORN AND BAUMANN

Temp. ° F.	Pressure in lb. per sq. in.									
	0	10	20	30	40	50	60	70	80	90
400	246.99	276.34	308.33	343.18	380.92	421.85	465.95	513.65	565.08	620.18
500	679.26	742.55	810.31	882.58	959.85	1042.2	1130.2	1223.7	1323.0	1428.3
600	1539.9	1657.8	1782.9	1915.3	2055.1	2203.1	2359.2	2523.4	2697.1	2882.3
700	3083.4	.....	.....	.....	.....	.....	.....	.....	.....	.....

Of the many formulas that have been proposed for the relation $p = f(t)$ between the pressure and temperature of saturated steam, a number are simply modifications of the general equation

$$\log p = A + \frac{B}{T} + C \log T + DT + ET^2 + FT^3 + \cdots .$$

The number of constants may be increased indefinitely by taking additional terms involving the higher powers of T. The signs of the coefficients B, C, D, E, etc., may be either positive or negative. Many of the proposed equations are simpler in form than the preceding, in particular Bertrand's equations, which have been extensively used.

However, such equations cannot be extended over any considerable temperature range without change of constants, and it is, of course, desirable that the entire range 32° F. to the critical temperature be represented by a single equation with the same constants.

After a number of trials the preceding equation was written in the form

$$\log p = A - \frac{B}{T} - C \log T - DT + ET^2 - \Delta \qquad (A)$$

where $$\Delta = 0.0002\left[10 - 10\left(\frac{t-370}{100}\right)^2 + \left(\frac{t-370}{100}\right)^4\right].$$

The addition of the term Δ amounts to the inclusion of terms in T^3 and T^4 in the general formula. The constants are

$$A = 10.5688080 \qquad \log D = \bar{3}.6088020$$
$$\log B = 3.6881209 \qquad \log E = \bar{6}.1463000$$
$$C = 0.0155 \qquad T = t + 459.6$$

The agreement between the formula and the experimental values is shown in Fig. 1. The equation is used as a standard of reference and

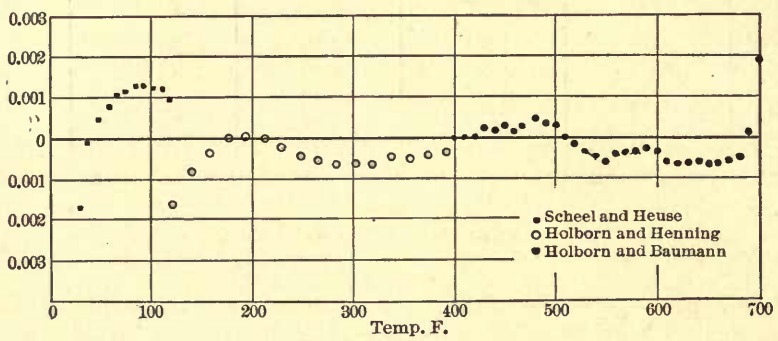


FIG. 1. PRESSURE AND TEMPERATURE OF SATURATED STEAM.

ordinates represent the relative deviation of the experimental values of p (taken from the preceding tables) from the calculated values. From 200 to 700 degrees the agreement is remarkably good, the deviations for the most part being less than 1 in 2000. Below 200 degrees the discrepancies are relatively larger but absolutely very small. Thus the discrepancy at 122° F. between the last Scheel and Heuse point and the first Holborn and Henning point, which looks large in the figure, is only 0.24 mm. of mercury. The equation gives an intermediate value at this temperature. At 32 degrees the equation gives 4.587 mm., while the value generally accepted is 4.579 mm. of mercury. So far as pressures are concerned the discrepancy is unimportant. The significant fact is that the derivative $\frac{dp}{dT}$ is quite uncertain at low temperatures.

Volume of Superheated and Saturated Steam. Characteristic Equations. — Direct experiments on the specific volume of saturated and superheated steam have been made by Ramsay and Young,* by Battelli,† and by Knoblauch, Linde, and Klebe.‡ The experiments in the Munich laboratory were so superior in all respects to those of the other investigators, that the results have been generally accepted.

In conducting these experiments the volume of a predetermined weight of steam was kept constant and corresponding temperatures and pressures were observed. These observed values of p and t when plotted give a constant volume curve, or "isochor" on the pt-plane. It was found that the curves, within the limits of accuracy of the experiments, were straight lines. These lines were prolonged to intersect the saturation curve $p = f(t)$, and the points of intersection gave, therefore, simultaneous values of p, v, and t, at the saturation limit.

For convenience in establishing a characteristic equation, Linde made use of the scheme of representation devised by Amagat. Values of the product pv were plotted as ordinates against values of p as abscissas. The experimental points were not taken for this purpose but rather the points determined by the intersection of the successive isochors by lines of constant temperature. In this way the points on the pv-p plane are separated into groups, each of which is associated with a particular temperature. In other words, curves through the successive sets of points are lines of constant temperature, or isotherms. Fig. 2 shows the points as thus determined.

Callendar § in his paper on the properties of gases and vapors had from theoretical considerations deduced the characteristic equation

$$v - b = \frac{BT}{p} - c_0\left(\frac{T_0}{T}\right)^{3.5},$$

in which b represents the minimum volume or co-volume of Hirn and van der Waals. This equation gives fair agreement with the experimental values at the lower temperatures, but it requires that the isotherms on the pv-p plane be straight lines, while the experimental points indicate that they should have appreciable curvature. In Linde's equation

$$v = \frac{BT}{p} - (1 + ap)\left[C\left(\frac{373}{T}\right)^3 - D\right]$$

the introduction of the term $(1 + ap)$ provides for the requisite curvature. The resulting isotherms are parabolas.

While Linde's equation represents the experiments very closely, it is open to two serious objections. 1. At 402° C. the "correction term" changes sign. 2. The equation cannot be reconciled with the accepted

* Phil. Trans. Roy. Soc. of London, Vol. 183-A, p. 107 (1892).
† Annales de Chimie et de Physique (7), Vol. 3, p. 408 (1894).
‡ Mitteilungen über Forschungsarbeit., Vol. 21, pp. 33–72 (1905).
§ Proc. of the Royal Soc. of London, Vol. 67 (1900), pp. 266–286.

specific heat measurements through the Clausius relation. In the attempt to remove these objections several equations have been developed and the one finally chosen has the form

$$v - c = \frac{BT}{p} - (1 + 3\,ap^{\frac{1}{2}})\frac{m}{T^n}. \qquad \text{(B)}$$

That equation (B) satisfactorily represents the experiments is shown by Fig. 2, in which the points represent the experimental values transferred

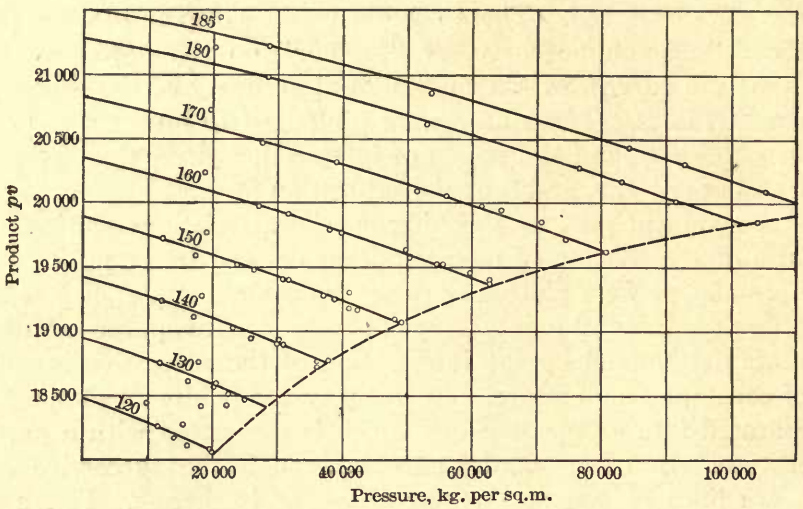


FIG. 2. ISOTHERMAL CURVES FROM EQ. (B). THE POINTS REPRESENT THE EXPERIMENTS OF KNOBLAUCH, LINDE, AND KLEBE.

to the pv-p plane, and the curves represent the equation with the various constant values of T indicated.

The term c in the equation is not strictly a constant. Following the suggestion of Callendar, this "co-volume" term is taken as the volume of the liquid corresponding to the pressure p. Hence when the equation is used to determine the volume of saturated steam the first member becomes $v'' - v'$, that is, the increase of volume during vaporization.

The following are the constants.

Metric Units (p in kg. per sq. m.)	English Units (p in lb. per sq. in.)
$\log B = 1.67213$	$\log B = \bar{1}.77448$
$\log m = 8.59929$	$\log m = 10.82500$
$\log 3\,a = \bar{3}.28644$	$\log 3\,a = \bar{2}.71000$
$n = 4$	$n = 4$

Specific Heat of Superheated Steam. — The experiments on specific heat may be divided into groups as follows:

1. The early experiments of Regnault with steam at atmospheric pressure and at temperatures relatively close to saturation.

2. The experiments of Mallard and Le Chatelier, Langen, and Pier at very high temperatures.

3. The experiments of Holborn and Henning with steam at atmospheric pressure and a temperature range of 110°–1400° C.

4. Recent direct experiments with steam at various pressures. Of these, the experiments of Knoblauch and Jakob and of Knoblauch and Mollier performed in the Munich laboratory are specially noteworthy. Similar experiments have been made by Thomas.

Regnault's experiments made in 1862 * indicated a constant value of $c_p = 0.4805$. Davis † has recomputed Regnault's values and has deduced a somewhat smaller value, namely, $c_p = 0.4762$. For the pressure and range of temperature covered in the experiment, Regnault's value agrees well with the results of recent experiments.

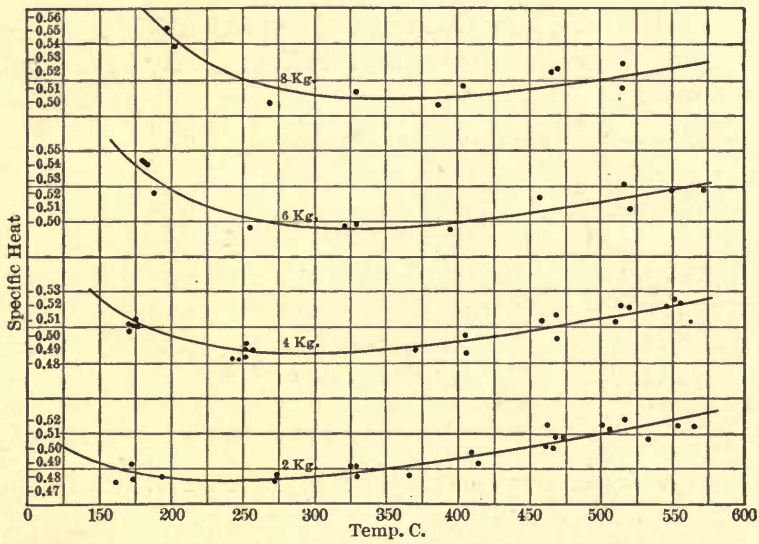


FIG. 3. CURVES OF SPECIFIC HEAT DEDUCED FROM EQ. (C). THE POINTS REPRESENT THE EXPERIMENTS OF KNOBLAUCH AND MOLLIER.

The high temperature experiments noted in group 2 have only an indirect bearing on the present discussion. The results obtained by the different investigators are discordant, but they all agree in showing a marked increase of specific heat with rising temperature. Thus Langen's experiments are represented by the linear relation

$$c_p = 0.439 + 0.000239\, t.$$

The experiments of Holborn and Henning ‡ form a link between the high temperature experiments of group 2 and the experiments of group 4. These measurements indicate values of c_p consistently lower than those obtained in the Munich experiments. While considerable weight must be attached to the Holborn and Henning experiments, it seems probable that preference must be given the Knoblauch and Mollier

* Mem. Inst. de France, Vol. 26, p. 167 (1862).

† Proc. Am. Acad., Vol. 45, p. 286 (1910).

‡ Annalen der Physik, Vol. 18, p. 739 (1905); Vol. 23, p. 809 (1907).

measurements. Callendar * has expressed the opinion that the Holborn and Henning values are too low by as much as 10 per cent.

Knoblauch and Jakob,† and subsequently Knoblauch and Mollier,‡ made observations of the specific heat at four different pressures, 2, 4, 6, and 8 kg. per sq. cm. The latter experiments extended the temperature range of the former from 350°–550° C.

After reviewing all the experimental evidence one must be convinced that for the range of temperature covered, the Knoblauch and Mollier measurements should be accepted without modification. These are shown in Fig. 3. For convenience in the identification of the measurements associated with the four pressures employed, the points have been separated into four groups.

By a combination of the characteristic equation (B) and the Clausius relation a general equation for the specific heat c_p may be derived. From the equation

$$v - c = \frac{BT}{p} - (1 + 3\,ap^{\frac{1}{2}})\frac{m}{T^n},$$

the second derivative

$$\left(\frac{\partial^2 v}{\partial T^2}\right)_p = -(1 + 3\,ap^{\frac{1}{2}})\frac{mn\,(n+1)}{T^{n+2}}$$

is obtained. Hence, from the Clausius relation,

$$\left(\frac{\partial c_p}{\partial p}\right)_T = -AT\frac{\partial^2 v}{\partial T^2} = \frac{Amn\,(n+1)}{T^{n+1}}(1 + 3\,ap^{\frac{1}{2}}).$$

An integration with T constant gives an expression for c_p, namely

$$c_p = F(T) + \frac{Amn(n+1)}{T^{n+1}}p(1 + 2\,ap^{\frac{1}{2}}).$$

The arbitrary function $F(T)$ is evidently c_{p_0}, that is, the specific heat at zero pressure. This was taken as a constant by Callendar. The experiments of Knoblauch and Mollier show that c_{p_0} cannot be constant, and this conclusion is confirmed by the high-temperature experiments of Langen and others. It has been suggested that a simple linear relation

$$c_{p_0} = \alpha + \beta T$$

may be assumed, but it is found that better results are obtained by a relation of the form

$$c_{p_0} = \alpha + \beta T + \frac{\gamma}{T^2}.$$

Writing the equation for c_p in the form

$$c_p = F(T) + f(p, T)$$

values of the term $f(p, T)$ may be calculated for each of the Knoblauch and Mollier experiments, and by subtraction the corresponding values of

* Report of British Assoc. Committee on Gaseous Explosions, pp. 31, 32 (1908).

† Mitteil. über Forschungsarbeit, Vol. 35, p. 109.

‡ Zeit. des Ver. deutsch. Ing., Vol. 55, p. 665 (1911).

$c_{p_0} = F(T)$ are found. From the curve through these points the constants α, β, and γ are obtained. The equation for c_p finally takes the form

$$c_p = \alpha + \beta T + \frac{\gamma}{T^2} + \frac{Amn(n+1)}{T^{n+1}} p(1 + 2ap^{\frac{1}{2}}), \qquad (C)$$

and the constants are

	Metric	English
$\alpha =$	0.320	0.320
$\beta =$	0.0002268	0.000126
$\gamma =$	7371	23583

The constants a, m, and n are those of the characteristic equation.

If in Eq. (C) various constant values of p are substituted, the result is a family of c_p-curves, $c_p = f(t)$. A comparison of this system of c_p-curves with the systems established by Davis * and by Jakob † reveals certain essential differences. In Fig. 3 the curves for 2, 4, 6, and 8 kg. per sq. cm. are shown superposed on the Knoblauch and Mollier points. It is evident that the agreement is satisfactory. Jakob's system represents the experiments equally well. In carrying the curves to the saturation curve both Davis and Jakob assume a sharp increase of c_p and the result is a system of values of c_p at saturation that appear to be unwarrantably high. Fig. 4 shows a comparison of the values of $(c_p)_{sat}$. Curve A is deduced from Eq. (C), curve J represents Jakob's values, and the points represent the Davis values; curve T represents the experiments of Thomas, and curve C the values calculated by Callendar. Passing now to the other end of the temperature range, values of c_p calculated from Eq. (C) agree fairly well with the experimental values of Langen, Pier, and Holborn at high temperatures 1000°–2000° C. Jakob's values tend to run somewhat lower, and the Davis system of values still lower. Hence it may be asserted that the system derived from Eq. (C) (1) satisfies the Knoblauch and Mollier experi-

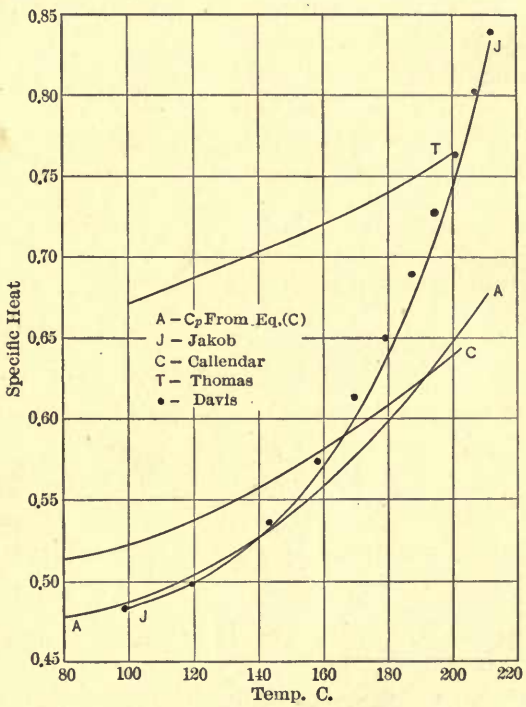


FIG. 4. CURVES OF SPECIFIC HEAT AT THE SATURATION LIMIT.

* Marks and Davis, Steam Tables and Diagrams, p. 97.

† Zeit. des Verein. deutsch Ing., Vol. 66, pp. 1981–3. 1912.

ments at least as well as the other systems, (2) gives more probable values of c_p at saturation, and (3) gives more trustworthy values of c_p at high temperatures.

Regnault's measurements of c_p at atmospheric pressure may be used as a rough check on corresponding values calculated from Eq. (C). The four series of experiments covered the temperature range 122.8°–231.1° C. The mean value of c_p given by Regnault was 0.4805, but this value is lowered to 0.4762 by Davis. All experiments were conducted at atmospheric pressure. The following table gives values of c_p at atmospheric pressure calculated from the equation, also the values assigned by Jakob for the slightly lower pressure, 1 kg. per sq. cm.

SPECIFIC HEAT AT ATMOSPHERIC PRESSURE

Temp. °C.	100	150	200	250	300	350	400
From Eq. (C).....	0.489	0.474	0.470	0.472	0.476	0.483	0.491
Jakob	0.482	0.473	0.471	0.473	0.477	0.483	0.490

The mean c_p deduced from the equation agrees very well with the recomputed value 0.4762.

Heat Content of Superheated and Saturated Steam.—From the two laws of thermodynamics the following general equations are derived.

$$dq = c_p\,dT - AT\left(\frac{\partial v}{\partial T}\right)_p dp,$$

$$di = c_p\,dT - A\left[T\left(\frac{\partial v}{\partial T}\right)_p - v\right]dp.$$

In the second equation we introduce the expression for c_p given by (C) and the expressions for $\left(\frac{\partial v}{\partial T}\right)_p$ and v obtained from the characteristic equation (B). The result of the substitutions is the exact differential equation

$$di = \left[\alpha + \beta T + \frac{\gamma}{T^2} + \frac{Amn\,(n+1)}{T^{n+1}}\,p\,(1 + 2\,ap^{\frac{1}{2}})\right]dT$$

$$- A\left[\frac{m\,(n+1)}{T^n}\,(1 + 3\,ap^{\frac{1}{2}}) - c\right]dp,$$

which upon integration gives the following equation for the heat content,

$$i = \alpha T + \frac{1}{2}\beta T^2 - \frac{\gamma}{T} - \frac{Am\,(n+1)}{T^n}\,p\,(1 + 2\,ap^{\frac{1}{2}}) + Acp + i_0. \qquad (D)$$

The constant i_0 is determined as follows. Corresponding saturation values of p and t at some definite temperature, say 212 degrees, are substituted in the equation, which for this purpose may be written

$$i_{sat} = \phi\,(p,\ T) + i_0.$$

The function $\phi\,(p,\ T)$ is thus calculated, and i_{sat} being known, i_0 is found by subtraction. The value $i_0 = 948.54$ B.t.u. is thus determined.

Since the constant c is taken as the liquid volume v', the term Acp is Apv', which is the small difference between the heat content i'' and the total heat q''. Hence, when applied at the saturation limit, equation (D) gives i'' and the same equation with the term Acp omitted gives q''.

At the saturation limit formula (D) may be checked with the Davis formula for heat content, which is surely valid within the range 212°–400° F. The comparison is shown graphically in Fig. 5. The points are

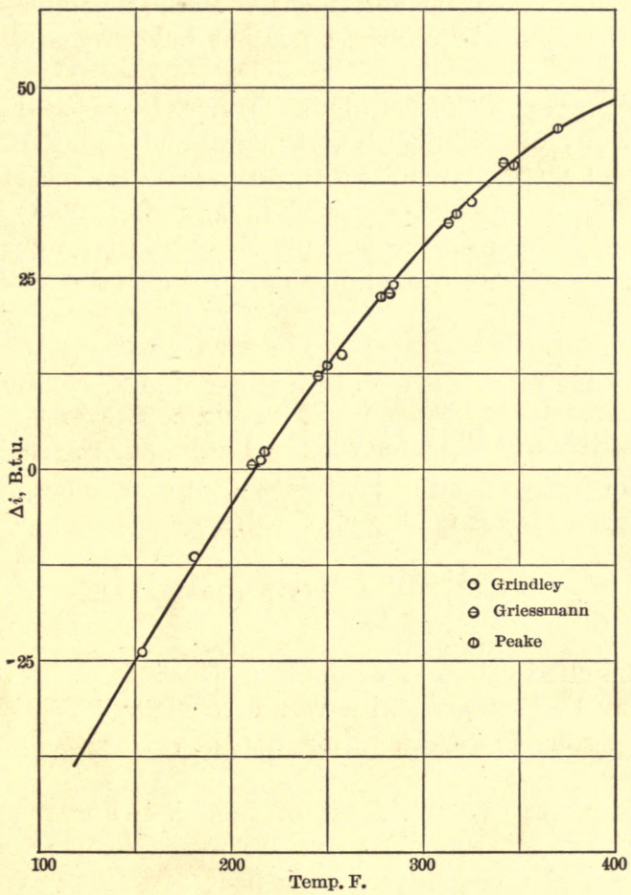


FIG. 5. COMPARISON OF i''-CURVE FROM EQ. (D) WITH POINTS DEDUCED FROM THE THROTTLING EXPERIMENTS.

those determined by Davis from the throttling experiments of Grindley, Griessmann, and Peake, and they are plotted from the data given in Table 1 of Davis' paper.* The ordinates represent the difference between the i at the given temperature t and the i at 212 degrees. The curve therefore represents the equation

$$i'' - i''_{212} = f(t),$$

where i'' is calculated from the formula and $i''_{212} = 1151.74$. The curve does not fit the points quite as well as the Davis second-degree curve,

* Proc. Am. Acad., Vol. 45, p. 276.

but the agreement is satisfactory and is probably well within the limits of accuracy of the throttling experiments. Beyond the last point the curve begins to bend downward rather sharply and thus diverge from the prolonged Davis curve. The maximum value of i'' is reached at about 440 degrees, while the Davis equation gives the maximum at about 550 degrees.

For the lower range 32–212 degrees, values of i'' calculated from equation (D) show excellent agreement with the available experimental values. In the following section on latent heat a comparison will be shown.

In the region of superheat formula (D) may be checked by the throttling experiments of Grindley, Griessmann, and Peake. According to the principles of thermodynamics a throttling process is also a constant-i process; that is, the points obtained in any particular throttling experiment when plotted on the pt-plane should lie on a curve $i = \text{const.}$ When the curves are superposed on the experimental points good agreement is shown. (See Fig. 9, Bulletin No. 75, Eng. Exper. Station Univ. of Ill.)

Essentially the same test may be applied in another way. The slope of a curve $i = \text{const.}$ on the Tp-plane is given by the derivative $\left(\frac{dT}{dp}\right)_{i=\text{const}}$ and this is the Joule-Thomson coefficient μ. From equation (D) the following expression for μ is readily obtained:

$$\mu = \frac{A}{c_p}\left[\frac{m\,(n+1)}{T^n}\,(1 + 3\,ap^{\frac{1}{2}}) - c\right].$$

Davis has computed values of μ from the various throttling experiments, and these may be compared with values calculated from the preceding equation. Reasonably good agreement is shown. (See Bulletin No. 75, Fig. 15.)

Specific Heat of Water. Heat of Liquid. — For the temperature range 32°–212° F. (0°–100° C.) there are available five sets of experiments on the variation of the specific heat of water with the temperature. The curves that represent the results of these experiments are separable into two groups having quite different characteristics. Ludin * working with the method of mixtures obtained a curve which shows a minimum value of c' at about 20° C., then a rapid rise to a maximum, at 87° C. The curves obtained by Dieterici † and Barnes ‡ are similar in character; each shows a decrease of c' to a well defined minimum, then a steady rise without any suggestion of a maximum. The experiments of Regnault and Dieterici above 100° C. show a steady rise of the specific heat with the temperature; hence, if Ludin's curve be accepted,

* Inaug. Diss. Zurich, 1895.
† Annalen der Physik (4), Vol. 16, pp. 593–620 (1905).
‡ Phil. Trans., Vol. 199-A, pp. 55–148, 149–263 (1902).

the specific heat after reaching its maximum at 87 degrees must diminish and then increase again. It is difficult to account for such a variation on any rational basis, and the curves of Barnes and Dieterici should be preferred to Ludin's curve. Davis * attached no weight whatever to Ludin's values and adopted a curve lying between those of Barnes and Dieterici, with Barnes' values given double weight. However, the question is again complicated by the experiments of W. R. and W. E. Bousfield † which reproduce Ludin's results, although the method employed (electric heating with a vacuum-jacket calorimeter) was entirely different from Ludin's method of mixtures. Finally Callendar ‡ has undertaken to throw light on the subject by a set of experiments in which a new and very accurate method was employed. Callendar's paper contains an exhaustive and valuable discussion of the whole subject.

The methods used by Barnes and Callendar, respectively, have the marked advantage of being continuous. In the Barnes experiments a steady current of water was heated through a small range of temperature by an electric current, and the result obtained was therefore the actual specific heat at a pre-determined temperature rather than the mean specific heat over a considerable range. Callendar used a continuous-mixture method in which two steady currents of water at different temperatures were passed through a system of concentric tubes which constituted a heat exchanger. The continuous-flow methods have obvious advantages over other methods. The water equivalent of the calorimeter is not required, and various corrections that involve uncertain measurements are eliminated.

The results of Callendar's experiments by the continuous-mixture method completely verify the earlier experiments of Barnes by the continuous-electric method. As these two independent methods are much superior to the other methods used and give identical results, there can be no question that these results should be accepted.

Taking the specific heat of water at 20° C. as unity, Callendar gives the following equation for the variation of the specific heat with temperature

$$c' = 0.98536 + \frac{0.504}{t+20} + 0.0084\frac{t}{100} + 0.0090\left(\frac{t}{100}\right)^2.$$

From the specific heat c' the heat content i' of the liquid is derived by the relation

$$i' = \int c'\,dt.$$

After changing from C. to F. temperatures and applying a factor to

* Steam Tables and Diagrams, p. 89.

† Phil. Trans., Vol. 211-A, pp. 199–251 (1911).

‡ Phil. Trans., Vol. 212-A, pp. 1–32 (1913).

reduce from the 20-degree calorie to the mean calorie, the equation for i' becomes

$$i' = 0.9838\,t + 2.0856 \log (t+4) + 0.233\left(\frac{t-32}{100}\right)^2 + 0.09245\left(\frac{t-32}{100}\right)^3 - 34.73.$$

For temperatures above 212 degrees, two sets of experiments are available, Regnault's and Dieterici's, neither of which can be accepted as thoroughly reliable. Regnault's results have been recomputed by

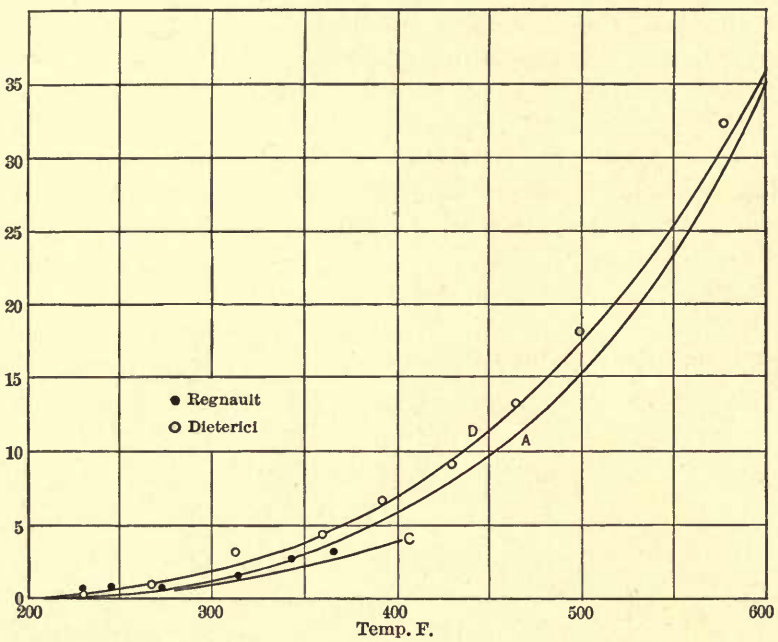


FIG. 6. HEAT CONTENT OF WATER, 212°–600° F.

various investigators. In Fig. 6, six mean values deduced from Callendar's computation are shown. The ordinates in this figure represent values of

$$\Delta i' = i' - (t - 32),$$

that is, the excess of the heat content over $t - 32$, the temperature range. Abscissas are temperatures F. In the same figure are shown the points obtained by Dieterici. The curve D represents the equation adopted by Dieterici and curve C represents Callendar's equation extended beyond 212 degrees.

Callendar questions the accuracy of Dieterici's experiments and gives preference to his equation extrapolated through the range 100°–200° C. It is probable that Dieterici's points are considerably in error, as the method of the experiments involved large corrections, and it is also probable that Regnault's points are no more reliable. However, there

seems to be no valid reason for choosing a curve, like curve *C*, lying below both sets of points.

Latent Heat of Saturated Steam. — The Clapeyron relation

$$r = A(v'' - v')\,T\frac{dp}{dT}$$

gives a means of calculating the latent heat. It is convenient to write the equation in the form

$$r = Ap(v'' - v')\,\frac{T}{p}\,\frac{dp}{dT}$$

in which the second member is made up of two factors. From the characteristic equation, the first is expressed by

$$Ap(v'' - v') = ABT - Ap(1 + 3ap^{\frac{1}{2}})\,\frac{m}{T^n}.$$

Upon differentiating equation (A) connecting the pressure and temperature of saturated steam, namely

$$\log p = A - \frac{B}{T} - C\log T - DT + ET^2 - \Delta,$$

the second factor is obtained in the form

$$\frac{T}{p}\frac{dp}{dT} = 2.3026\left[\frac{B}{T} - DT + 2ET^2 - T\frac{d\Delta}{dt}\right] - C.$$

For the range 32–212 degrees, within which the heat of the liquid is given accurately by the experiments of Barnes and Callendar, a second independent method of calculating the latent heat is available. Saturation values of i are calculated from the formula for heat content and from these are subtracted the corresponding known values of the heat of the liquid. The difference gives, of course, the latent heat. The following table gives values of r obtained by the two methods.

LATENT HEAT, 32°–212° F.

Temp. ° F.	32	40	80	120	160	200	212
i'' from Eq. (D)	1072.98	1076.79	1095.45	1113.49	1130.79	1147.09	1151.74
i' Barnes & Callendar	0	8.05	48.05	87.94	127.87	167.94	180.00
r by subtraction	1072.98	1068.74	1047.40	1025.55	1002.92	979.15	971.74
r by Clapeyron relation	1072.35	1068.12	1046.97	1025.27	1002.77	979.12	971.74

Above 212 degrees the heat of the liquid is so uncertain that the method of determining r by subtraction is hardly justified. Hence values of r are calculated from the Clapeyron relation, and subtracted from corresponding values of i''. The result is a set of values of i' that may be compared with the Regnault and Dieterici experimental values. The following table exhibits the details of the calculation.

LATENT HEAT AND HEAT OF LIQUID, 212°–600° F.

Temp. ° F.	212	240	280	320	360	400	440	480	520	560	600
i'' from Eq. (D).....	1151.74	1162.06	1175.33	1186.47	1195.03	1200.54	1202.56	1200.56	1194.09	1182.68	1165.94
r from Clap. rel.....	971.74	953.88	926.57	896.65	863.60	826.83	785.78	739.78	688.02	629.51	562.96
i' by subtraction.....	180	208.18	248.76	289.82	331.43	373.71	416.78	460.78	506.07	553.17	602.98

Referring to the first of the preceding tables, the close agreement of the two sets of values of r may be noted. The greatest difference, which occurs at 32–40 degrees, is about 6 in 10,000. This agreement is a decisive test of the validity of the analysis. The two sets of numbers are obtained independently, one from the characteristic equation, the other from the heat-content equation, and the agreement between the two shows the satisfaction of the Clapeyron relation. Of the two sets the one obtained from the heat-content equation should be chosen, rather than the set derived by means of the Clapeyron relation. The reason for this lies in the slight uncertainty in the exact value of the derivative $\frac{dp}{dt}$ at low temperatures. It was shown in connection with Fig. 1 that the course of the Scheel and Heuse points indicates that the true value of this derivative at 32 degrees is probably slightly greater than the value obtained from the formula. The slightly lower values of r calculated from the Clapeyron relation in the range of 32–80 degrees may be ascribed, therefore, to a small error in the derivative.

For the range 212°–600° F. the important result is the set of values of i', heat of the liquid. In Fig. 6 curve A represents the new set of values for the range 212°–600° F. It lies between Dieterici's curve and Callendar's extrapolated curve and represents very well the Regnault experiments as interpreted by Callendar. Above 400 degrees the curve runs from 1 to 3 B.t.u. lower than the Dieterici points, a deviation of 0.2 to 0.6 per cent. Dieterici admits a possible error of 0.3 to 0.5 per cent in the experiments to determine the mean specific heat c_m and a further error in the reduction of c_m to the actual specific heat. It is likely that a possible error of at least 1 per cent may be attached to Dieterici's points; hence if the points are too high, as is indicated by Regnault's experiments and Callendar's extrapolated formula, the curve probably represents the true values fairly well.

The values of the latent heat r given in the preceding table may be compared with direct experiments within the range 32–212 degrees. For this purpose four sets of experiments are available, those of Dieterici,* Griffiths,† Smith,‡ and Henning.§ The following table gives the results of these experiments expressed in a common unit, the mean B.t.u.

* Annalen der Physik, Vol. 37, pp. 494–508 (1889).
† Phil. Trans., Vol. 186-A, pp. 261–341 (1895).
‡ Phys. Review, Vol. 25, pp. 145–170 (1907).
§ Annalen der Physik (4), Vol. 21, pp. 849–878 (1906).

EXPERIMENTAL DETERMINATIONS OF LATENT HEAT

	Temp. ° F.	Latent heat B.t.u.
Dieterici	32	1072.9
Griffiths	86	1045.1
	104.3	1034.1
Smith	57.1	1061.6
	70.1	1054.5
	82.5	1047.6
	103.6	1035.0
Henning	86.2	1043.2
	120.5	1026.2
	148.7	1008.0
	171.2	995.4
	192.7	983.3
	213.1	969.8

In Fig. 7 these results are shown by the plotted points and the curve represents the variation of r according to equation (D). The agreement is satisfactory, though Smith's points would indicate that the calculated values may be slightly low.

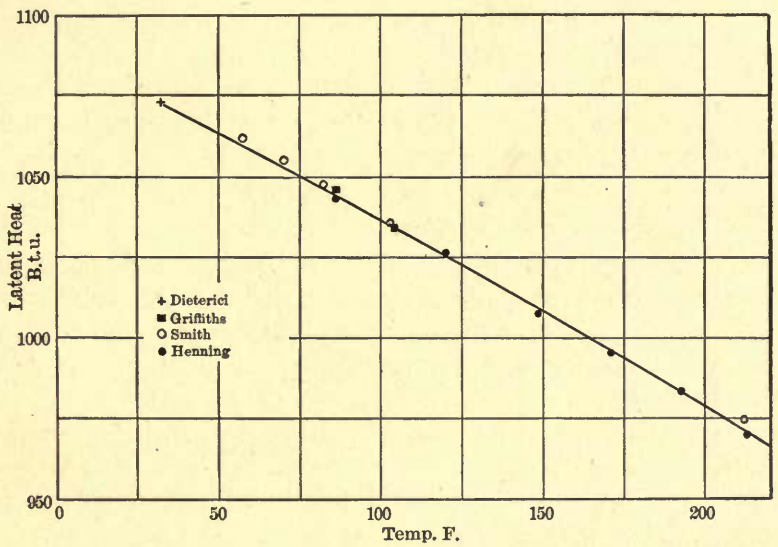


FIG. 7. LATENT HEAT OF SATURATED STEAM, 32°–212° F.

Special interest attaches to the value of r at 212° F. For years Regnault's number 966 B.t.u. was universally accepted. Callendar in his 1900 paper gave the value 972, which is almost precisely the value that is now considered most probable. Davis made use of the experiments of Henning and Joly at 212° and set the value of r at 970.4 B.t.u. Smith's recent experiments * on slow vaporization of water under atmospheric pressure indicate a value higher than any yet assumed. Heck uses the value 971.2, Mollier uses 971.4. The present investi-

* Physical Review, Vol. 33, p. 183 (1911).

gation leads to the number 971.7, which is probably quite close to the truth, though if anything slightly low.

Entropy. — An expression for the entropy of superheated steam is readily obtained from the fundamental equation,

$$dq = c_p dT - AT\left(\frac{\partial v}{\partial T}\right)_p dp.$$

Dividing by T,

$$ds = \frac{dq}{T} = c_p \frac{dT}{T} - A\left(\frac{\partial v}{\partial T}\right)_p dp.$$

From the characteristic equation

$$\left(\frac{\partial v}{\partial T}\right)_p = \frac{B}{p} + \frac{mn}{T^{n+1}}(1 + 3\,ap^{\frac{1}{3}}).$$

Introducing this and the expression for c_p in the preceding equation, the result is

$$ds = \left[\frac{\alpha}{T} + \beta + \frac{\gamma}{T^3} + \frac{Amn\,(n+1)}{T^{n+2}} p\,(1 + 2\,ap^{\frac{1}{3}})\right] dT - \frac{AB}{p} dp - \frac{Amn}{T^{n+1}}(1 + 3\,ap^{\frac{1}{3}})\,dp.$$

The integration of this exact differential equation gives the following equation for the entropy

$$s = \alpha \log_e T + \beta T - \frac{1}{2}\frac{\gamma}{T^2} - AB \log_e p - \frac{Amn}{T^{n+1}} p\,(1 + 2\,ap^{\frac{1}{3}}) + s_0. \qquad \text{(E)}$$

The constant s_0 is found by applying the equation at the saturation limit. The value thus determined is $s_0 = -0.08108$.

For the range 32°–212° F., within which Callendar's formula for the heat of the liquid is surely applicable, there are available two independent methods of calculating the entropy of saturated steam. 1. The entropy of the liquid s' is determined by the integration of Callendar's equation for i' and the entropy of vaporization $\frac{r}{T}$ is added. 2. Corresponding saturation values of p and T are substituted directly in the preceding formula for s. The two methods give substantially identical results.

Above 212° F. the entropy s'' of saturated steam is calculated from formula (E) and the entropy of the liquid s' is obtained by the relation

$$s' = s'' - \frac{r}{T}.$$

Integration of Callendar's i'-equation gives the following formula for s':

$$s' = 2.3623 \log T + 0.0045775 \log (t + 4) - 0.00022609\,T + 0.0000013867\,T^2 - 6.28787.$$

Intrinsic Energy. — From the defining equation

$$i = A\,(u + pv)$$

the energy u in thermal units is readily obtained by subtraction; thus

$$u = i - Apv.$$

Combination of equations (B) and (D) gives therefore the following explicit expression

$$u = (\alpha - AB)\,T + \tfrac{1}{2}\beta T^2 - \frac{\gamma}{T} - \frac{Amnp}{T^n}\left(1 + \frac{2n-1}{n}\,ap^{\frac{1}{2}}\right) + i_0. \qquad \text{(F)}$$

Computation of the Steam Tables. — The tabulated properties of superheated steam — volume, entropy, and heat content — are calculated directly from formulas (B), (E), and (D), respectively. The same formulas with corresponding saturation values of p and t inserted give, respectively, the volume, entropy, and heat content of saturated steam. The pressures of saturated steam are calculated from formula (A). Within the range 32°–212° F. the heat content i' of the liquid is obtained from Callendar's formula, and the latent heat r is then found by subtraction, according to the relation $r = i'' - i'$. For temperatures above 212° F. the latent heat is calculated from the Clapeyron relation

$$r = \psi \frac{T}{p}\frac{dp}{dT},$$

in which

$$\psi = A\left[BT - p\,(1 + 3\,ap^{\frac{1}{2}})\,\frac{m}{T^n}\right].$$

Values of i' are then obtained by subtraction, since $i' = i'' - r$. The internal latent heat ρ is found from the relation

$$\rho = r - \psi,$$

and the internal energy u'' from the relation

$$u'' = i'' - Apv''.$$

The entropy of the saturated steam s'' having been obtained from the general formula (E), the entropy of the liquid s' is found by subtracting $\frac{r}{T}$, thus

$$s' = s'' - \frac{r}{T}.$$

In the process of computation the formulas were used to give values of the required magnitudes for temperatures (or pressures) so selected as to give a suitable constant interval, and the intervening values were obtained by interpolation.

Units and Constants. — In these tables the mean B.t.u. is taken as the thermal unit. This is defined as $\frac{1}{180}$th of the heat required to raise the temperature of a pound of water from 32° to 212° F. The corresponding mean calorie is by Griffiths identified with the 17½-degree calorie and by Barnes with the 16-degree calorie.

The various determinations of the mechanical equivalent seem to justify the value established by Griffiths in 1893, namely,

1 mean calorie = 4.184 joules
1 mean B.t.u. = 777.64 standard ft. lb.

This value has been used.

Various determinations of the absolute temperature of the ice-point have been made. These indicate a value of 273.1° C. or about 459.6° F. The investigation of Rose-Innes (1908) points to the value 459.64, but it does not appear that the degree of accuracy indicated by the fifth figure is at present justified. The value 459.6 has been taken, and the relation between absolute and ordinary temperatures is therefore given by

$$T = t + 459.6.$$

THERMAL PROPERTIES OF AMMONIA

Experimental Data. — Experiments on the properties of ammonia are by no means as complete or as concordant as the experiments on water vapor. Hence any formulation for ammonia must be regarded as merely tentative and subject to revision as further experimental evidence becomes available.

Experiments on the pressure-temperature relation for saturated ammonia vapor have been made by Regnault, Faraday, Blümcke, Brill, and Davies.*

Data on the specific volume of liquid ammonia are furnished by the experiments of Lange, D'Andréeff, and Dieterici, and on the specific volume of the saturated vapor by the experiments of Dieterici. The experiments of Perman, Guye, and Leduc furnish a few isolated values of the volume of the superheated vapor.

Measurements of the latent heat of vaporization have been made by Regnault, Franklin and Kraus, Von Strombeck, Estreicher and Schnerr, Denton and Jacobus. The values obtained are very discordant.

Fairly trustworthy values of the heat content of liquid ammonia throughout the range 50°–160° F. are given by the experiments of Dieterici and Drewes.

Finally, a few values of the specific heat of superheated ammonia are given by Keutel, Voller, Wiedemann, Regnault, and Nernst.

Pressure-Temperature Relation. — The law of Ramsay and Young affords the most satisfactory method of calculating corresponding temperatures and pressures of saturated ammonia vapor. This law is expressed by the equation

$$R = R' + k\,(T - T'),$$

in which R and R' denote the ratio of the saturation temperatures of two different substances at two different pressures, and T, T' denote the absolute temperatures of one of the vapors corresponding respectively to the pressures. Let water and ammonia be the two substances and let T_w and T_a denote respectively the absolute temperatures of saturated steam and ammonia at the *same* pressure; then the law is expressed by the simple equation

$$\frac{1}{T_a} = c\,\frac{1}{T_w} + k.$$

* For an exhaustive bibliography of the investigations of ammonia, see Bulletin No. 66, University of Illinois Experiment Station, pp. 92–94.

Accurate values of T_w are given in the steam tables; hence, if the constants c and k are known, values of T_a are readily calculated. Using the graphical method suggested by Moss, Mosher plotted the available experimental values and established the following values of the constants

$$c = 1.70343 \qquad k = -0.0002242.$$

Values of T_a thus obtained represent with satisfactory accuracy the most reliable of the experiments.

Specific Volume of Liquid Ammonia. — For the temperature range $-60°$ to $160°$ F., Mosher, following Avenarius, assumed an equation of the form

$$v' = a - b \log (t_k - t),$$

to express the relation between the liquid volume and the temperature. In this equation t_k denotes the critical temperature of ammonia, which is taken as $273.2°$ F. With the constants $a = 0.06335$, $b = 0.016$, the equation represents satisfactorily the experiments of Dieterici, Lange, and D'Andréeff. Above $160°$ F. the liquid volumes were determined by the law of the "straight diameter."

Specific Volume of Saturated Ammonia Vapor. Latent Heat. — By a combination of the equation expressing Ramsay and Young's law with the Clapeyron equation, the following relation is obtained:

$$\frac{(v'' - v')_w}{r_w} = \frac{(v'' - v')_a}{r_a}\left[1 + \frac{k}{c} T_w\right].$$

The subscript w refers to water, the subscript a to ammonia. The ratio $\frac{k}{c}$ is -0.0001316. At any given pressure the term in the first member of this equation and the bracketed term in the second member may be found from the known properties of steam. Hence the quotient $\frac{v'' - v'}{r}$ for ammonia may be calculated.

With reference to the numerator $v'' - v'$, satisfactory values of v' are available and Dieterici's experiments give acceptable values of v'' within the range $30°$–$222°$ F. Hence tentative values of the latent heat r may be calculated and compared with the experimental values. Following this procedure, Mosher deduced the following formula:

$$\log r = 1.856064 + 0.37 \log (273.2 - t).$$

The curve $r = f(t)$ representing this equation fits the discordant experimental points at least as well as any of the other proposed curves and the form of the equation is such as to justify extrapolation to very low temperatures.

With this equation for r available the process just described may be reversed, and values of $v'' - v'$ may be calculated. Values of v'' up to $160°$ F. were thus obtained. For temperatures above $160°$ F., values of v'' were obtained from the law of the straight diameter.

Properties of Superheated Ammonia. — The characteristic equation for superheated ammonia was given the form

$$v + c = \frac{BT}{p} - \frac{m}{T^n}$$

and the following constants were chosen:

$$B = 0.6321 \ (p \text{ in lb. per sq. in.})$$
$$\log m = 12.90000$$
$$c = 0.10$$
$$n = 5$$

With these constants the equation represents satisfactorily the experimental volumes of the superheated vapor, and at saturation it gives values that agree closely with values of v'' obtained from the Clapeyron relation.

With the analytical methods that were used in the case of superheated steam the following equations are derived:

$$c_p = \alpha + \beta T + \frac{Amn\,(n+1)}{T^{n+1}}\,p,$$

$$i = \alpha T + \frac{1}{2}\beta T^2 - A\,(n+1)\,p\,\frac{m}{T^n} - Acp + i_0,$$

$$s = \alpha \log_e T + \beta T - AB \log_e p - Anp\,\frac{m}{T^{n+1}} + s_0.$$

The constants must be adjusted to meet two conditions. 1. Values of c_p calculated from the first equation should agree with available experimental values. 2. Values of i' obtained from the equation for i (by subtraction of r from i'') should agree with the experimental values found by Dieterici and Drewes. The following values were finally chosen

$$\alpha = 0.382 \qquad i_0 = 358.0$$
$$\beta = 0.000174 \qquad s_0 = -0.8266$$

THE TABLES AND DIAGRAMS

Explanation of the Tables. — Tables 1 and 2 give the properties of saturated steam and Table 3 the properties of superheated steam. Tables 7, 8, and 9 give similarly the properties of saturated and superheated ammonia.

In Table 2 the temperature is taken as the argument and the tabular values were calculated directly from the general equations. The values in Table 1, in which the pressure is the argument, were obtained by interpolation from Table 2. Below atmospheric pressure, the pressures in Table 1 are given in inches of mercury, and from 0.2 to 5 inches the interval is taken as 0.1 inch. Hence the properties associated with the low pressures involved in modern condenser practice may be easily determined.

The upper limit of the range of temperature for which the general equations may be considered valid is apparently about 560° F. However, tentative values of the various properties between 560 degrees and the critical temperature are given in Table 2. These were obtained by certain empirical methods that are described in the original paper. (See Bulletin No. 75, Eng'g Exper. Station, U. of Ill., pp. 61–64.) While experimental evidence is lacking for temperatures above 400° F., it is believed that the values between 400 and 560 degrees are fairly accurate. Those for temperatures above 560 degrees are not so worthy of confidence.

In the case of superheated steam, the properties are functions of both pressure and temperature. Table 3 is so arranged that the properties for eight successive pressures appear on each page. The temperature rather than the degree of superheat is taken as the variable. Ten-degree intervals are used up to about 200 degrees of superheat and 50-degree intervals beyond. Under each pressure is given in parentheses the corresponding saturation temperature so that the degree of superheat if desired may be readily obtained by subtraction.

Table 4 gives corresponding temperatures and pressures of saturated steam near atmospheric pressure. In other words, the table gives boiling points for various barometer indications.

Table 5 gives the important thermal properties of water. At the lower temperatures the values of density and volume were taken from the most reliable existing data. The specific heat throughout and the other properties at higher temperatures were recalculated.

Table 6 gives the more important data of mixtures of air and saturated vapor of water. It will be found useful in the solution of prob-

lems that involve hygrometric conditions. As is customary in present practice, tabular values are based on the weight rather than the volume of the dry air. The three columns of thermal magnitudes may require some explanation. The first of these gives the heat content of 1 pound of dry air above 0° F. The values were obtained from Swann's expression for the specific heat of air, namely,

$$c_p = 0.24112 + 0.000009\,t.$$

The next column gives the heat required to vaporize the weight of water required to saturate the air at the given temperature. Below 32 degrees the heat of sublimation rather than the latent heat of vaporization is used. The third of the three columns gives the heat content of the mixture, and the values are obtained by adding the corresponding values in the other columns. Strictly speaking, the term "heat content" is improper in this connection, because the heat of the liquid is not included. The heat content of a non-saturated mixture with known relative humidity may be found with sufficient accuracy from the first two of these three columns. Multiply the tabular value in the second column by the relative humidity and add the product to the value in the first column. Thus with a temperature of 80° F. and relative humidity of 0.70, the heat content of 1 pound of air with the contained water vapor is

$$19.32 + 0.70 \times 23.31 = 35.64 \text{ B.t.u.}$$

Tables 7, 8, 9, and 10 for ammonia correspond to Tables 1, 2, 3, and 5 for water vapor, and require no special comment.

The Diagrams. — For the expeditious solution of many engineering problems in which extreme accuracy is not required the tables of properties may be replaced by certain graphical charts. It is perhaps true that the value of such graphical aids is generally overestimated, and that most problems can be worked from the tables with the expenditure of very little more time and effort and with much greater accuracy.

While any two of the variables p, v, t, u, s, i may be taken as the ordinate and abscissa, respectively, the Mollier chart, in which i and s are so used, has important advantages.

Two Mollier diagrams, one for steam and one for ammonia, accompany these tables. These differ in one essential respect. In the case of steam the properties of the medium near the liquid state are rarely needed, hence the chart includes only the properties near the saturation limit and in the region of superheat. In the case of ammonia, on the other hand, the liquid curve must be included on account of the phenomena connected with the free expansion of the fluid through the expansion valve. Therefore the ammonia diagram has two parts, one showing the properties in the region of superheat and near the saturation curve, the other the properties near the liquid curve.

Each diagram gives several families of curves. Lines parallel to the coördinate axes give, respectively, values of heat content and entropy as read on the scales along the margin. There is a family of constant-pressure curves, in the superheat region a family of constant-temperature curves, and in the mixture region a family of constant-quality curves. Any point on the diagram represents a definite state of the fluid. If the point lies in the region of superheat the heat content, entropy, pressure, and temperature are read off directly; if it lies in the mixture region the quality is given but the temperature must be obtained from the pressure. Two important properties, the volume and energy, are not given by the diagram as constructed. While it is possible to construct constant-volume and constant-energy curves, the inclusion of so many families of curves on a single diagram would lead to confusion. Furthermore, at low pressures the volume changes so rapidly that it is impossible to read volumes with any degree of accuracy. The volume and energy may, however, be easily obtained from the other properties. Thus to find the volume: If the point lies in the region of superheat read the pressure and temperature from the diagram and simply look up the corresponding value of v in Table 3; if it lies in the mixture region read the pressure and quality from the diagram, look up the value of the saturation volume v'' for the pressure, and multiply this by the quality. Having the specific volume, the energy is readily obtained from the relation

$$u = i - 144\,Apv$$
$$= i - 0.1852\,pv. \qquad (\log 0.1852 = \bar{1}.26758.)$$

If the pressure is given in inches of mercury the formula becomes

$$u = i - 0.091\,pv.$$

Illustrative Examples. — The following examples illustrate some of the more important uses of the diagrams and tables.

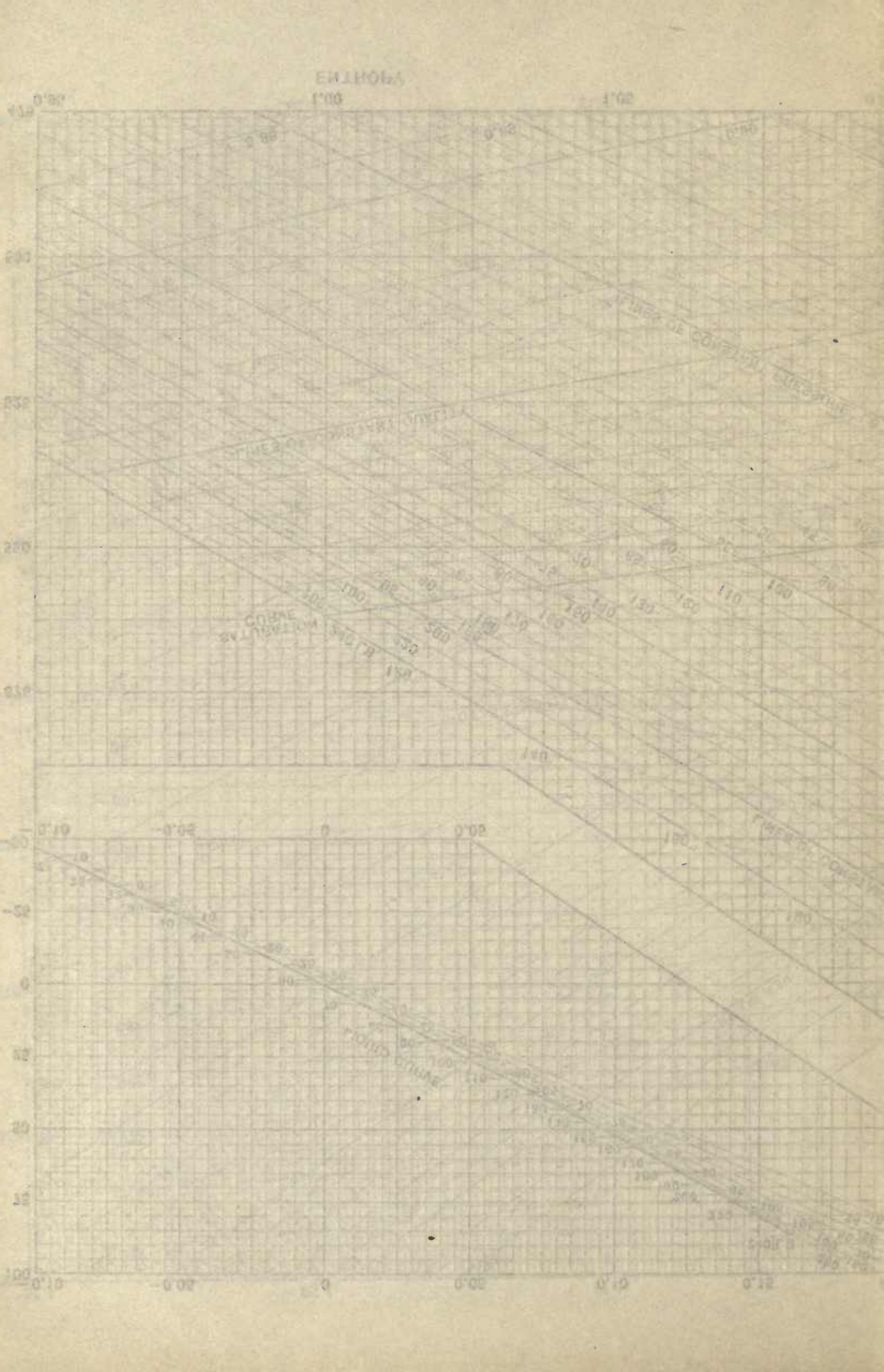
Example 1.* Find the properties of steam at a pressure of 120 lb. per sq. in. and a temperature of 412° F.

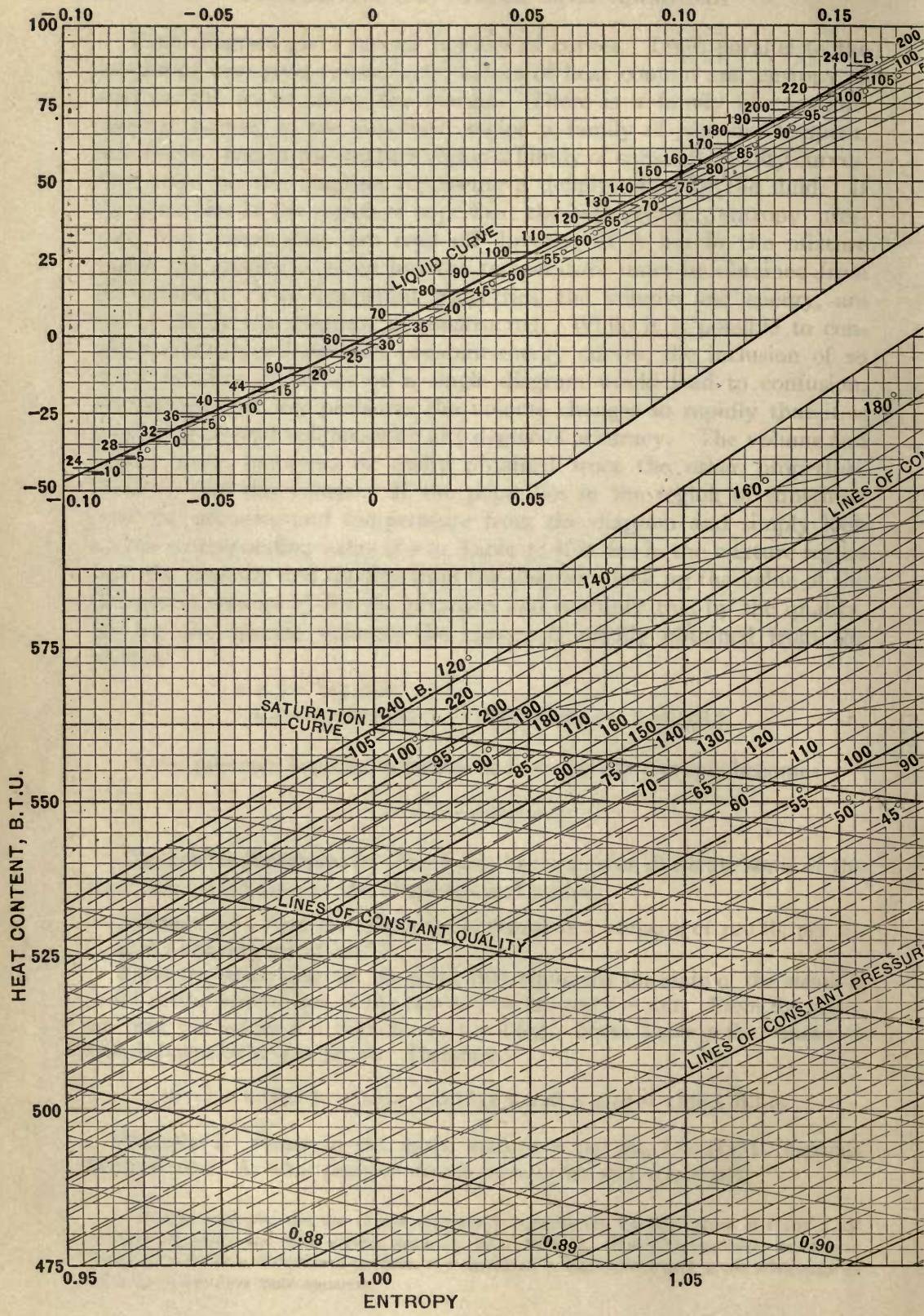
From the steam diagram the point that represents the state of the steam is found at the intersection of the curves $p = 120$ and $t = 412$. From the scales are read the values $i = 1231$ B.t.u., $s = 1.637$. From Table 3 the volume of 1 lb. is found to be 4.16 cu. ft. Therefore

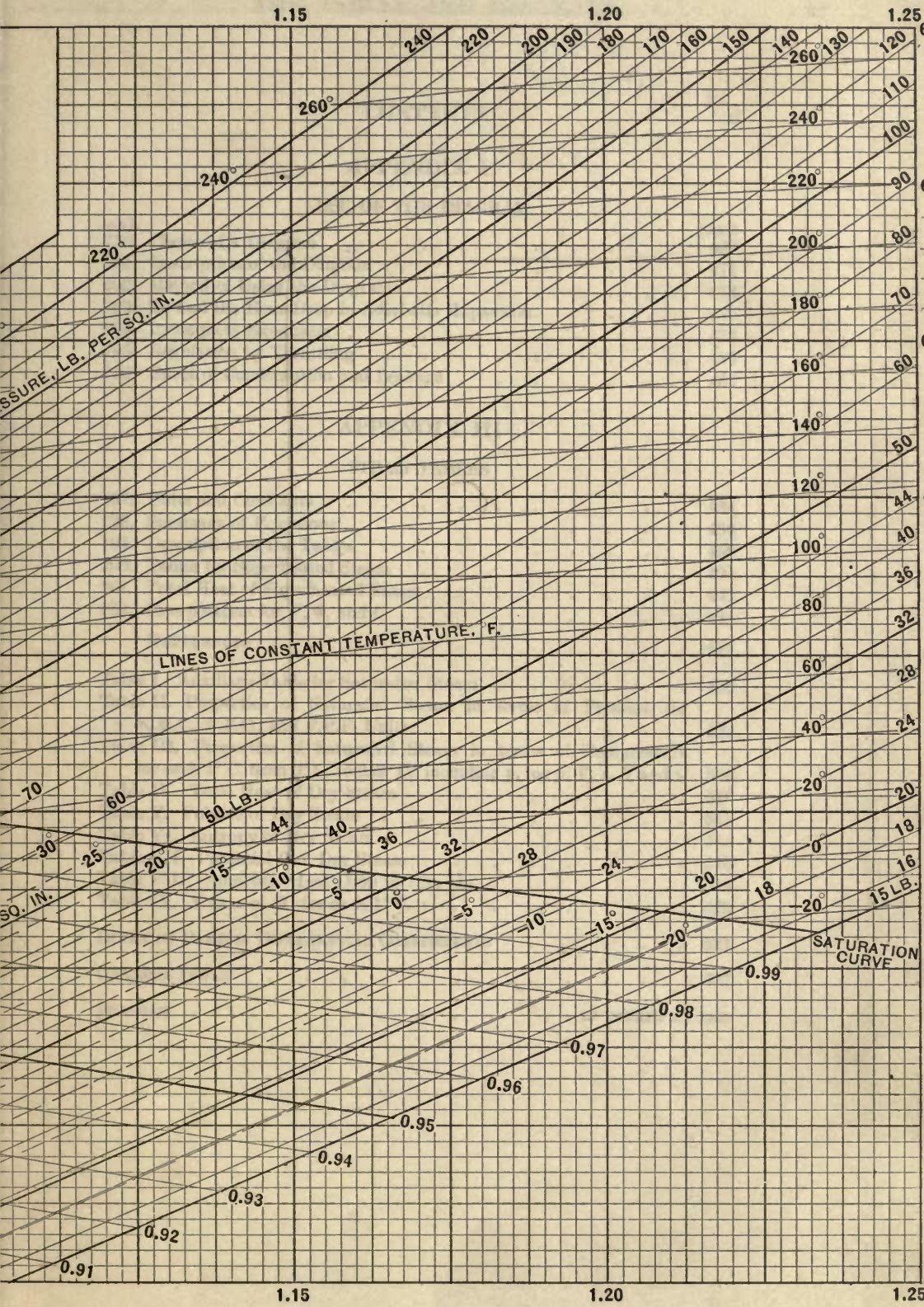
$$u = i - 0.1852\,pv = 1232 - 0.1852 \times 120 \times 4.16 = 1138.5 \text{ B.t.u.}$$

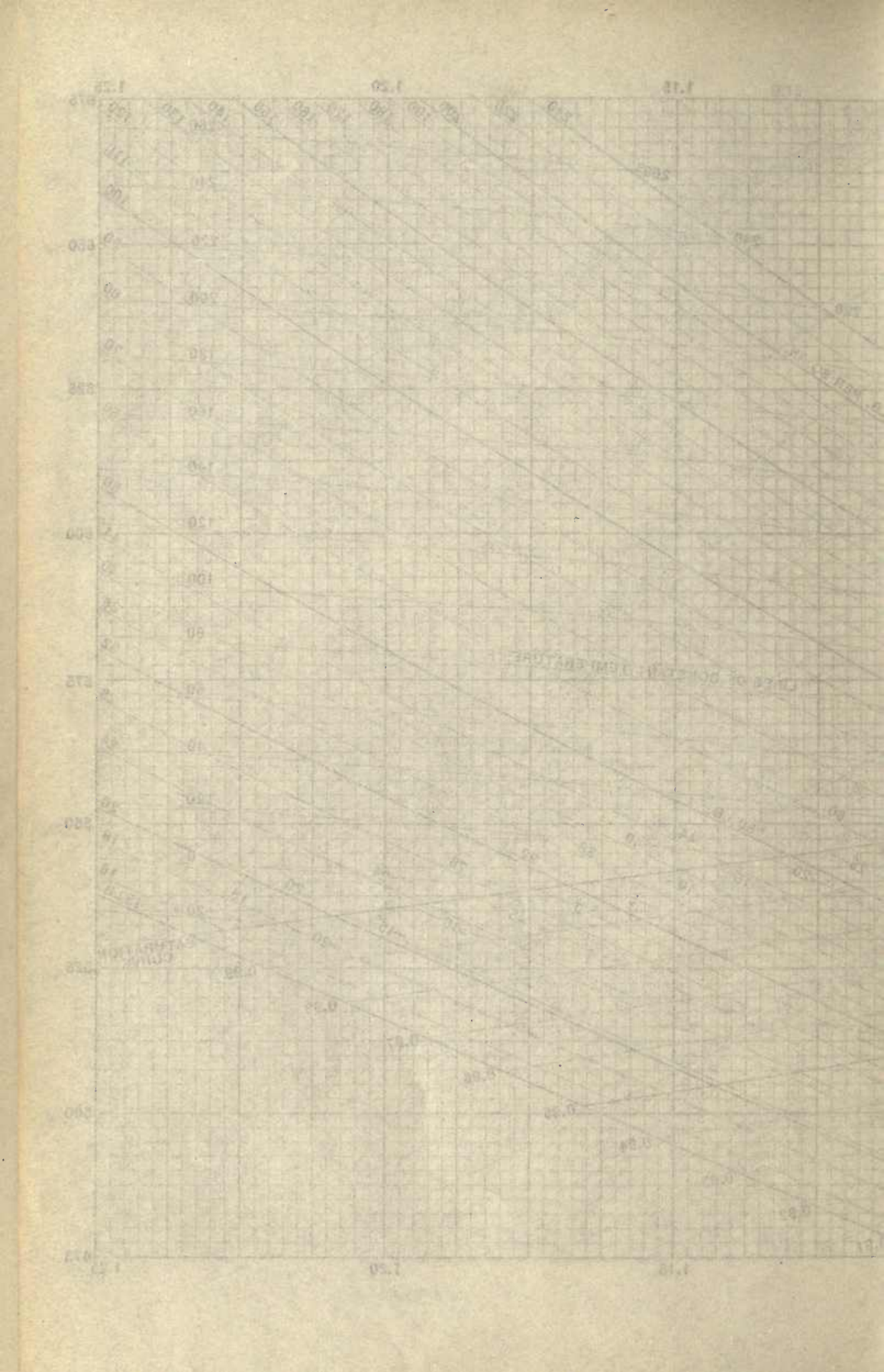
Example 2. Steam in the initial state $p = 120$ lb., $t = 412°$ F. expands adiabatically. At what pressure does it become dry and saturated?

* In this example, the use of the diagram is superfluous, for the values of i and s are obtained as easily and with greater accuracy from Table 3. When the problem involves a change of state or a comparison between two states, as in Examples 2 and 3, the advantage of the diagram becomes more apparent.




HEAT CONTENT, B.T.U.
ENTROPY
LIQUID CURVE
SATURATION CURVE
LINES OF CONSTANT QUALITY
LINES OF CONSTANT PRESSUR
LINES OF CO
0.88
0.89
0.90
240 LB.
220
200
190
180
170
160
150
140
130
120
110
100
105°
100°
95°
90°
85°
80°
75°
70°
65°
60°
55°
50°
45°
40°
35°
30°
25°
20°
15°
10°
5°
0°
-5°
-10°
44
36
32
28
24
-0.10
-0.05
0
0.05
0.10
0.15
0.95
1.00
1.05
100
75
50
25
0
-25
-50
575
550
525
500
475


1.15
1.20
1.25
675
650
625
600
575
550
525
500
475
SSURE, LB. PER SQ. IN.
LINES OF CONSTANT TEMPERATURE, F.
SATURATION CURVE
50 LB.
15 LB.
SQ. IN.
0.99
0.98
0.97
0.96
0.95
0.94
0.93
0.92
0.91



APPENDIX II

USE OF THE DIAGRAM

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	DIAGRAM	IN POCKET AT END

In adiabatic expansion the entropy remains constant; hence the second state is given by the intersection of the line $s = 1.637$ with the saturation curve. The pressure indicated by this point is 68 lb. per sq. in.

Example 3. Steam in the same initial state as in Examples 1 and 2 expands adiabatically to a pressure of 2.5 in. of mercury. Find the volume, heat content, energy, and quality in the final state.

The entropy in the initial state is 1.637; hence find the intersection of the line $s = 1.637$ with the curve $p = 2.5$ in. of Hg. This point gives the values $x = 0.822$, $i = 925$ B.t.u. From Table 1, v'' for 2.5 in. of Hg is 247.7 cu. ft., hence the volume of the mixture with quality of 0.822 is $247.7 \times 0.822 = 203.6$ cu. ft. The energy is $925 - 0.091 \times 2.5 \times 203.6 = 878.7$ B.t.u.

Example 4. With the data of Example 3, find the work done by 1 pound of steam in expanding.

When steam expands adiabatically the work done is equal to the decrease of energy. $u_1 = 1138.5$ (Ex. 1) and $u_2 = 878.7$; hence the work is

$$w_{12} = 1138.5 - 878.7 = 259.8 \text{ B.t.u.} = 202{,}030 \text{ ft. lb.}$$

Example 5. Steam having an initial pressure of 180 lb. per sq. in. and a temperature of 550° F. is assumed to pass through an ideal Rankine cycle. Find the heat changed into work (*a*) when the steam is exhausted at a pressure of 16 lb.; (*b*) when it is exhausted at a pressure of 3 in. of Hg.

In the Rankine cycle the heat changed into work is given by the decrease of the heat content during adiabatic expansion. From the diagram, $i_1 = 1297.4$ B.t.u. Following the line of constant entropy to $p = 16$ lb., i_2 is found to be 1094 B.t.u., and continuing to $p = 3$ in. of Hg, $i_2 = 950$ B.t.u. Hence the heat turned into work is for the first case $1297.4 - 1094 = 203.4$ B.t.u., and for the second case $1297.4 - 950 = 347.4$ B.t.u.

Example 6. Steam at a pressure of 200 lb. per sq. in. and quality 0.97 is throttled in passing through a reducing valve. At what pressure will the steam be dry and saturated after passing through the valve?

In a throttling process the heat content i remains constant. Hence a line $i = \text{const.}$ through the initial point intersects the saturation curve in a point that gives the required final state. The pressure is found to be 44 lb. per sq. in.

Example 7. In a throttling calorimeter the observed pressure is 17 lb. and the temperature 255° F. If the initial pressure of the steam was 160 lb., what was the initial quality?

A line of constant i through the point $p = 17$ lb., $t = 255°$ cuts the line $p = 160$ lb. in a point at which the quality is 0.973.

Example 8. Steam at a pressure of 200 lb. per sq. in. and a temperature of 450° F. expands in a nozzle to a pressure of 60 lb. per sq. in. Find the velocity attained by the jet (*a*) when the flow is assumed to be frictionless; (*b*) when, due to friction, there is a loss of 12 per cent in the energy of the jet.

If the expansion in a nozzle is adiabatic and frictionless the fundamental equation of flow is $\frac{w^2}{2g} = J(i_1 - i_2)$, or $w = 223.7\sqrt{i_1 - i_2}$. The effect of friction is to decrease the jet energy, and if this decrease is y per cent of the frictionless jet energy, the velocity in this case is given by $w = 223.7\sqrt{(i_1 - i_2)(1 - y)}$.

From the diagram the initial heat content is 1240, and the final heat content

after adiabatic expansion to 60 lb. is found to be 1139 B.t.u. Hence, if the flow is frictionless,

$$w = 223.7\sqrt{1240 - 1139} = 2250 \text{ ft. per sec., approx.}$$

With 12 per cent loss of energy, the velocity is

$$w = 223.7\sqrt{(1240 - 1139) \times 0.88} = 2110 \text{ ft. per sec.}$$

Example 9. In case (*b*) of Example 8, find the quality and specific volume of the steam in the final state, that is, after expansion to 60 lb.

In the frictionless case the change in i is $1240 - 1139 = 101$ B.t.u. With friction this is decreased 12 per cent, leaving $101 \times 0.88 = 88.9$ B.t.u. Hence in the second state $i = 1240 - 88.9 = 1151.1$ B.t.u., and the pressure is 60 lb. From the diagram the corresponding quality is 0.97, nearly. For 60 lb., $v'' = 7.18$ cu. ft., hence the volume per pound is $7.18 \times 0.97 = 6.96$ cu. ft.

Example 10. Determine the area of the end section of the nozzle for a discharge of 75 lb. of steam per minute, using the results obtained in Examples 8 and 9.

In the equation of continuity, $Fw = Mv$, M is given as $\frac{75}{60}$ lb. per sec., $w = 2110$, $v = 6.96$. Hence the area F is

$$\frac{75}{60} \times \frac{6.96}{2110} = 0.00413 \text{ sq. ft.} = 0.595 \text{ sq. in.}$$

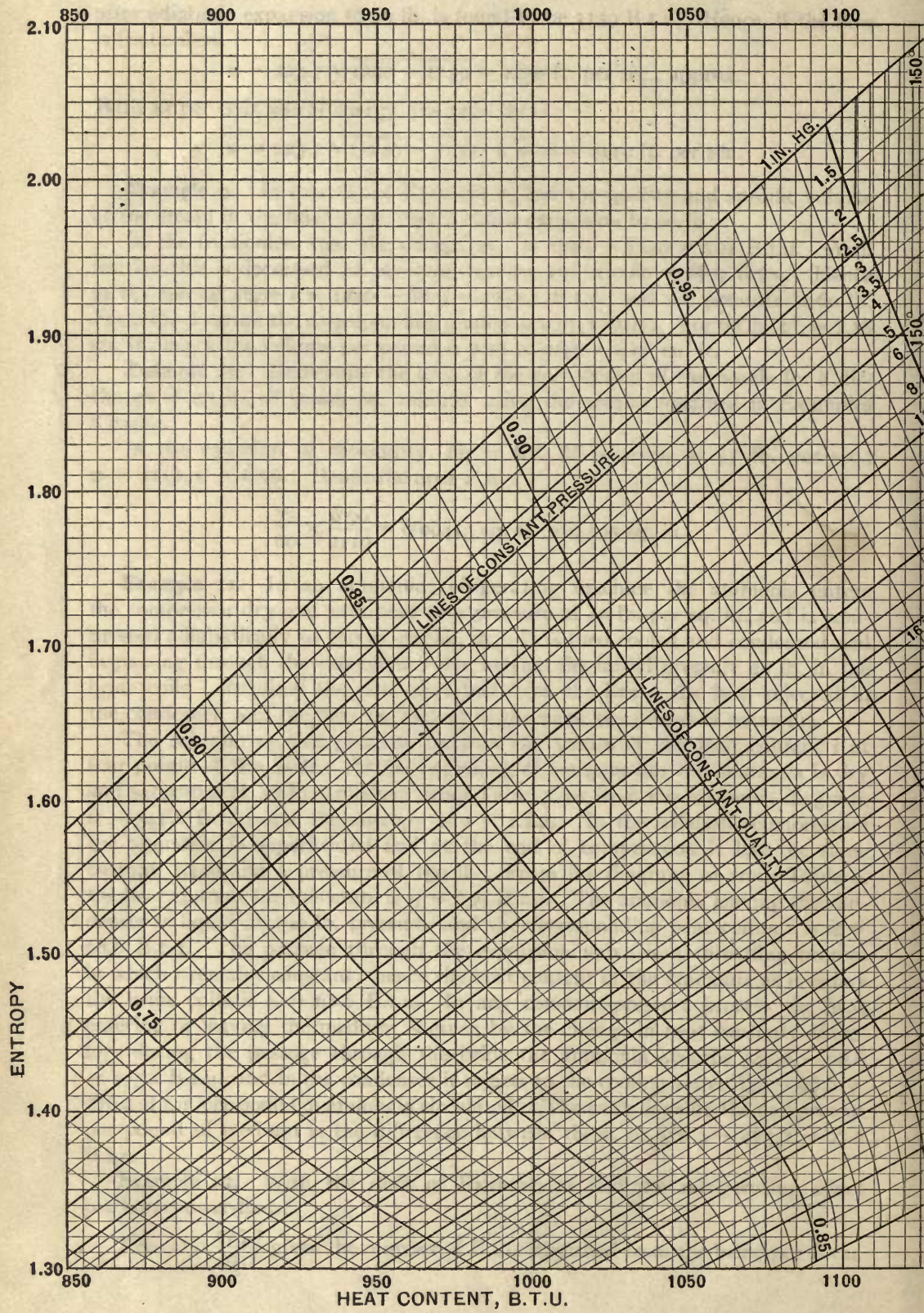
Example 11. In an ammonia refrigerating machine the ammonia enters the compressor dry and saturated at a pressure of 40 lb. per sq. in. and is compressed adiabatically to 190 lb. per sq. in. It is then cooled and condensed and in passing through the expansion valve attains the initial pressure 40 lb. in the brine coils. Required the heat absorbed from the brine, the heat rejected in the condenser, and the heat equivalent of the work per pound of ammonia.

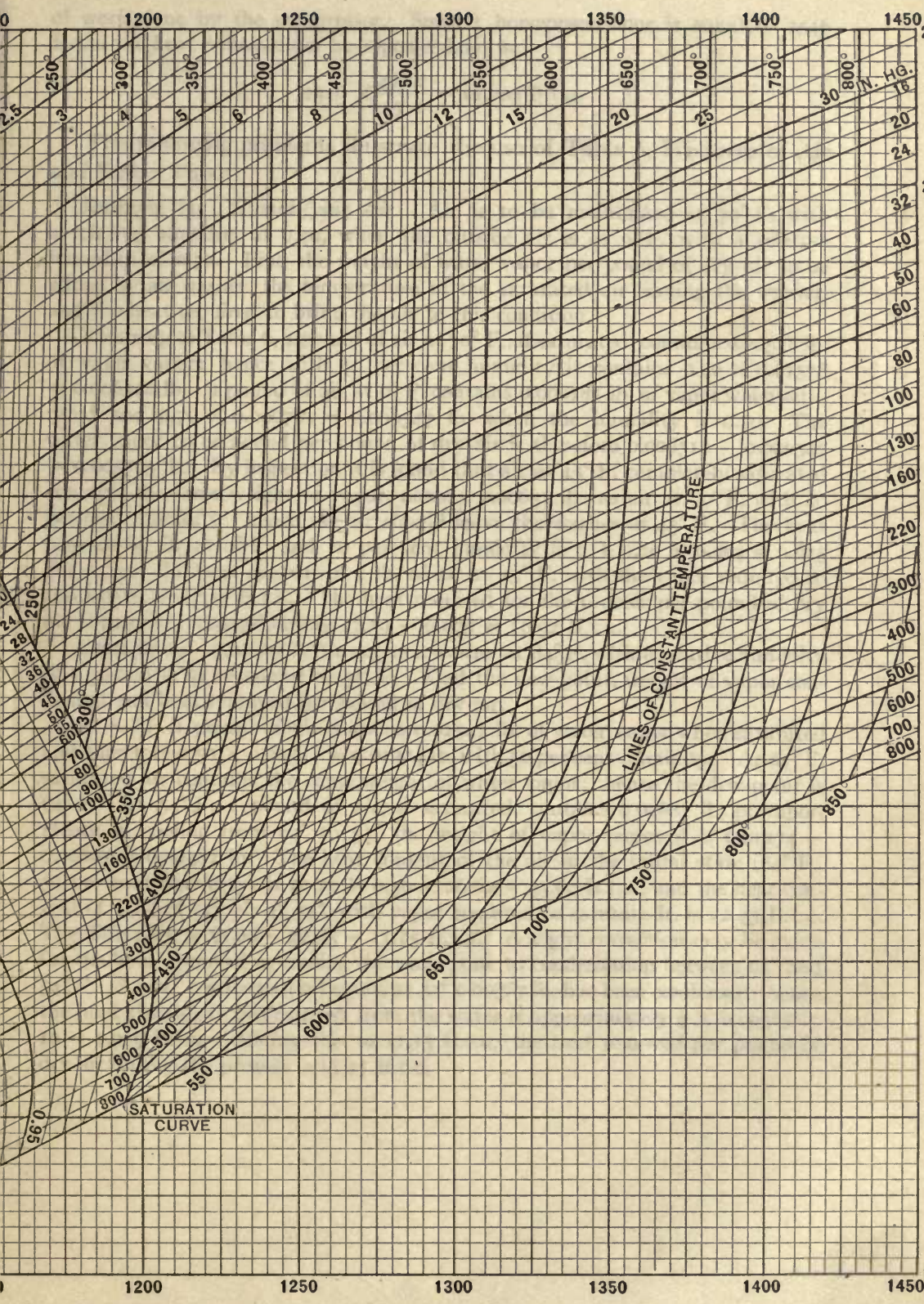
The solution of this problem requires the values of the heat content i at four points of the cycle. At the beginning of compression the ammonia is dry and saturated at 40 lb. pressure; from Table 7, or from the ammonia diagram, $i_1 = 541.8$ B.t.u. and the entropy is $s = 1.149$. In the adiabatic compression the ammonia is superheated and at the end of compression it has the same entropy 1.149 and a pressure of 190 lb. From the diagram, or from Table 9, the heat content for this state is $i_2 = 639$ B.t.u. The ammonia leaving the condenser is liquid at 190 lb. pressure, and the corresponding heat content is $i_3 = 68.6$ B.t.u. The passage through the expansion valve is a throttling process in which i remains constant; hence the heat content of the ammonia as it enters the brine coils is $i_4 = 68.6$ B.t.u. In any constant-pressure process the heat entering or leaving the medium is given by the change in heat content; therefore during the passage through the brine the ammonia absorbs $541.8 - 68.6 = 473.2$ B.t.u., and in the condenser it rejects to the cooling water $639 - 68.6 = 570.4$ B.t.u. per pound of ammonia circulated. The work done by the compressor per pound of medium is the difference between these, or $570.4 - 473.2 = 97.2$ B.t.u.

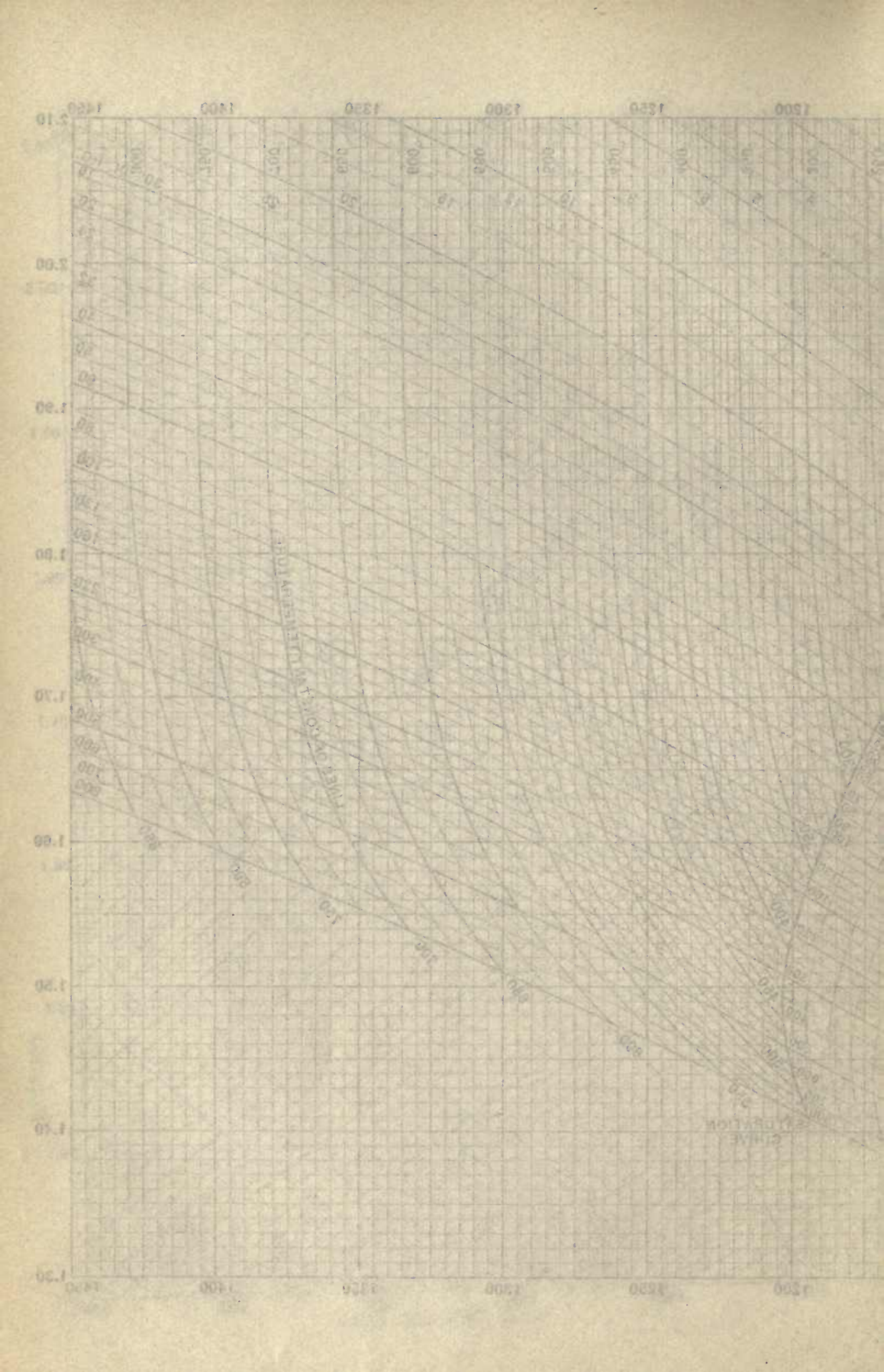
Example 12. With the data of Example 11 find the refrigerating effect per horsepower-hour.

The ratio $\frac{473.2}{97.2}$ gives the number of B.t.u. absorbed from the brine per B.t.u.

HEAT CONTENT, B.T.U.


850
900
950
1000
1050
1100
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
ENTROPY
HEAT CONTENT, B.T.U.
1 IN. HG.
1.5
2
2.5
3
3.5
4
5
6
8
150°
150°
0.95
0.90
0.85
0.80
0.75
0.85
LINES OF CONSTANT PRESSURE
LINES OF CONSTANT QUALITY


1200
1250
1300
1350
1400
1450
LINES OF CONSTANT TEMPERATURE
SATURATION CURVE
IN. HG.
2.1
2.0
1.9
1.8
1.7
1.6
1.5
1.4
1.3



of work done by the compressor. Since 1 horsepower-hour is equal to 2546 B.t.u. the heat removed per horsepower-hour is

$$2546 \times \frac{473.2}{97.2} = 12{,}600 \text{ B.t.u.}$$

The following problems illustrate the use of Table 6, Mixtures of Air and Water Vapor.

Example 13. *Humidifying Air.* Air is to be maintained at 70° F. with a relative humidity of 0.40, when the outside air is at 0° F. with a relative humidity of 0.70. Find the weight of water vapor per pound of dry air to be added by air washer, the temperature of the saturated air leaving the washer, and the heat required to bring the air to this condition.

Referring to Table 6, 1 pound of air at 70° F., if saturated, contains 0.01578 lb. of water vapor; hence with 40 per cent humidity it contains 0.40 × 0.01578 = 0.006312 lb. 1 pound of air at 0° F. contains 0.000781 lb. of vapor when saturated and 0.70 × 0.000781 = 0.000547 lb. when the humidity is 0.70. The water vapor to be added per pound of dry air is therefore 0.006312 − 0.000547 = 0.005765 lb. By inspection it is found that air at 45° F. completely saturated contains the same weight of vapor, namely 0.00631 lb., as air at 70° F. with 40 per cent humidity; hence the air should leave the washer at 45° F. The heat content of air at 0° F. and 70 per cent humidity is 0 + 0.70 × 0.964 = 0.675 B.t.u., and the heat content of 1 lb. of air at 45° F. with the vapor required to saturate it is 17.59 B.t.u. The heat required for the process per pound of dry air is therefore approximately 17.59 − 0.675 = 16.92 B.t.u.

Example 14. *Cooling.* Air enters a washer at 84° F. with a relative humidity of 0.50 and is to be cooled to 54° F. Find the dew-point, weight of vapor condensed and heat removed per pound of dry air.

At 84° F. 1 pound of air contains 0.02547 lb. of water vapor when saturated and therefore 0.50 × 0.02547 = 0.01274 lb. with 50 per cent humidity. At 64° F. saturated air contains the same weight of water vapor; hence the dew-point is 64° F. At 54° F. 1 pound of air, if saturated, contains 0.00887 lb. of vapor. Hence in cooling from 64° to 54° the weight of vapor removed is 0.01274 − 0.00887 = 0.00387 lb. The heat content of the air in the initial state (84° F., 50 per cent humidity) is 20.29 × 0.50 × 26.62 = 33.60 B.t.u., and the heat content of 1 lb. of dry air at 54°, with vapor required to saturate it, is 22.45 B.t.u. The difference is 33.60 − 22.45 = 11.15 B.t.u. A slight correction may be made for the heat removed in cooling the water, due to condensation between 64° and 54° F. At 64° condensation begins, at 54° 0.00387 lb. has been condensed; hence the heat that must be removed from the water is approximately $\frac{1}{2}$ × 0.00387 × 10 = 0.019 B.t.u. Adding this to 11.15 B.t.u., the heat removed per pound of dry air during the process is 11.17 B.t.u.

TABLE 1

PROPERTIES OF SATURATED STEAM

PRESSURES

Pressure		Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
In. of mercury	Lb. per sq. in.				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	—	t	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
0.2	0.0982	34.55	2992	0.000334	2.56	1074.2	1071.7	1016.3	1018.8	0.0052	2.1687	2.1739
0.3	.1474	44.97	2036	.000491	13.04	1079.2	1066.1	1010.6	1023.6	.0262	2.1130	2.1392
0.4	.1965	52.67	1550	.000645	20.75	1082.8	1062.0	1005.7	1026.4	.0413	2.0732	2.1146
0.5	.2456	58.83	1255	.000797	26.91	1085.7	1058.8	1001.7	1028.6	.0533	2.0423	2.0956
0.6	.2947	63.98	1056	.000947	32.06	1088.1	1056.0	998.4	1030.4	.0632	2.0169	2.0801
0.7	0.3438	68.43	913	0.001096	36.50	1090.1	1053.6	995.5	1032.0	0.0717	1.9956	2.0672
0.8	.3929	72.35	805	.001243	40.42	1091.9	1051.5	993.0	1033.4	.0790	1.9768	2.0558
0.9	.4421	75.87	720	.001389	43.93	1093.5	1049.6	990.7	1034.6	.0856	1.9602	2.0458
1.0	.4912	79.06	652	.001534	47.11	1095.0	1047.9	988.7	1035.8	.0915	1.9455	2.0370
1.1	.5403	81.98	596	.001679	50.03	1096.4	1046.4	986.8	1036.8	.0969	1.9320	2.0290
1.2	0.589	84.68	549	0.001823	52.72	1097.6	1044.9	985.0	1037.7	0.1019	1.9198	2.0217
1.3	.639	87.19	508.7	.001966	55.23	1098.8	1043.5	983.4	1038.6	.1065	1.9085	2.0150
1.4	.688	89.54	474.3	.002108	57.57	1099.8	1042.3	981.9	1039.4	.1108	1.8980	2.0087
1.5	.737	91.75	444.5	.002250	59.77	1100.8	1041.1	980.4	1040.2	.1148	1.8882	2.0030
1.6	.786	93.83	418.2	.002391	61.84	1101.8	1040.0	979.1	1040.9	.1185	1.8791	1.9976
1.7	0.835	95.80	395.0	0.002532	63.81	1102.7	1038.9	977.8	1041.6	0.1221	1.8705	1.9926
1.8	.884	97.67	374.3	.002672	65.68	1103.5	1037.9	976.6	1042.3	.1254	1.8624	1.9878
1.9	.933	99.46	355.7	.002811	67.46	1104.3	1036.9	975.4	1042.9	.1286	1.8547	1.9833
2.0	.982	101.17	338.9	.002950	69.16	1105.1	1036.0	974.3	1043.5	.1316	1.8474	1.9790
2.036	1	101.76	333.3	0.00300	69.76	1105.4	1035.6	973.9	1043.7	0.1327	1.8448	1.9775
2.1	1.031	102.80	323.7	0.00309	70.79	1105.9	1035.1	973.2	1044.0	0.1345	1.8404	1.9750
2.2	1.081	104.37	309.8	.00323	72.36	1106.6	1034.2	972.2	1044.6	.1373	1.8338	1.9711
2.3	1.130	105.88	297.1	.00337	73.86	1107.2	1033.4	971.2	1045.1	.1400	1.8274	1.9674
2.4	1.179	107.33	285.5	.00350	75.30	1107.9	1032.6	970.3	1045.6	.1425	1.8213	1.9639
2.5	1.228	108.73	274.7	.00364	76.70	1108.5	1031.8	969.4	1046.1	.1450	1.8155	1.9605
2.6	1.477	110.08	264.7	0.00378	78.05	1109.1	1031.1	968.5	1046.5	0.1474	1.8099	1.9573
2.7	1.326	111.39	255.5	.00391	79.36	1109.7	1030.4	967.6	1047.0	.1497	1.8045	1.9541
2.8	1.375	112.66	246.9	.00405	80.62	1110.3	1029.7	966.8	1047.4	.1519	1.7992	1.9511
2.9	1.424	113.89	238.9	.00419	81.85	1110.8	1029.0	966.0	1047.8	.1540	1.7942	1.9482
3.0	1.474	115.08	231.4	.00432	83.04	1111.4	1028.3	965.2	1048.2	.1561	1.7893	1.9454
3.1	1.523	116.24	224.4	0.00446	84.19	1111.9	1027.7	964.4	1048.6	0.1581	1.7846	1.9427
3.2	1.572	117.37	217.8	.00459	85.32	1112.4	1027.0	963.7	1049.0	.1601	1.7800	1.9401
3.3	1.621	118.47	211.6	.00473	86.41	1112.9	1026.4	962.9	1049.4	.1620	1.7756	1.9376
3.4	1.670	119.54	205.7	.00486	87.48	1113.3	1025.8	962.2	1049.7	.1638	1.7713	1.9351
3.5	1.719	120.58	200.2	.00500	88.52	1113.8	1025.3	961.5	1050.1	.1656	1.7671	1.9327
3.6	1.768	121.60	195.0	0.00513	89.53	1114.2	1024.7	960.9	1050.4	0.1673	1.7631	1.9304
3.7	1.817	122.59	190.0	.00526	90.52	1114.7	1024.2	960.3	1050.7	.1690	1.7591	1.9281
3.8	1.866	123.57	185.3	.00540	91.49	1115.1	1023.6	959.6	1051.0	.1707	1.7553	1.9260
3.9	1.916	124.52	180.8	.00553	92.44	1115.5	1023.1	958.9	1051.4	.1723	1.7515	1.9238
4.0	1.965	125.44	176.5	.00566	93.37	1115.9	1022.5	958.3	1051.7	.1739	1.7478	1.9217
4.072	2	126.10	173.6	0.00576	94.02	1116.2	1022.2	957.9	1051.9	0.1750	1.7452	1.9203
4.1	2.014	126.35	172.5	0.00580	94.28	1116.3	1022.0	957.7	1052.0	0.1755	1.7442	1.9197
4.2	2.063	127.25	168.7	.00593	95.16	1116.7	1021.5	957.1	1052.3	.1770	1.7407	1.9177
4.3	2.112	128.12	165.0	.00606	96.03	1117.1	1021.1	956.5	1052.6	.1785	1.7373	1.9158
4.4	2.161	128.97	161.5	.00619	96.89	1117.5	1020.6	956.0	1052.9	.1799	1.7340	1.9139

Pressure		Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
In. of mercury	Lb. per sq. in.				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	—	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
4.5	2.211	129.81	158.1	0.00633	97.73	1117.8	1020.1	955.4	1053.1	0.1813	1.7307	1.9121
4.6	2.260	130.64	154.8	.00646	98.55	1118.2	1019.7	954.9	1053.4	.1827	1.7275	1.9103
4.7	2.309	131.44	151.7	.00659	99.35	1118.6	1019.2	954.4	1053.7	.1841	1.7244	1.9085
4.8	2.358	132.24	148.8	.00672	100.14	1118.9	1018.8	953.8	1054.0	.1854	1.7214	1.9068
4.9	2.407	133.02	145.9	.00685	100.92	1119.2	1018.3	953.3	1054.2	.1867	1.7184	1.9051
5	2.456	133.78	143.2	0.00698	110.68	1119.6	1017.9	952.8	1054.5	0.1880	1.7154	1.9034
6	2.947	140.80	120.7	.00829	108.69	1122.6	1013.9	948.1	1056.8	.1998	1.6888	1.8886
6.108	3	141.49	118.7	0.00843	109.38	1122.9	1013.5	947.6	1057.0	0.2009	1.6862	1.8871
7	3.438	146.88	110.4	0.00958	114.8	1125.2	1010.5	944.0	1058.8	0.2098	1.6661	1.8760
8	3.929	152.26	92.1	.01085	120.2	1127.5	1007.4	940.4	1060.5	.2187	1.6464	1.8651
8.144	4	152.99	90.6	0.01104	120.9	1127.9	1007.0	939.9	1060.7	0.2199	1.6438	1.8637
9	4.421	157.10	82.5	0.01212	125.0	1129.6	1004.6	937.1	1062.1	0.2265	1.6290	1.8556
10	4.912	161.50	74.8	.01338	129.4	1131.4	1002.1	934.1	1063.5	.2336	1.6134	1.8470
10.180	5	162.25	73.5	0.01360	130.1	1131.7	1001.6	933.6	1063.7	0.2348	1.6107	1.8456
11	5.403	165.55	68.4	0.01463	133.4	1133.1	999.7	931.3	1064.8	0.2401	1.5992	1.8393
12	5.894	169.30	63.0	.01587	137.2	1134.7	997.5	928.8	1065.9	.2461	1.5862	1.8323
12.216	6	170.07	62.0	0.01614	137.9	1135.0	997.1	928.2	1066.2	0.2473	1.5835	1.8308
13	6.39	172.79	58.5	0.01710	140.7	1136.1	995.5	926.4	1067.0	0.2516	1.5742	1.8258
14	6.88	176.06	54.6	.01833	143.9	1137.5	993.6	924.1	1068.0	.2568	1.5630	1.8198
14.25	7	176.85	53.7	0.01864	144.7	1137.8	993.1	923.6	1068.3	0.2581	1.5603	1.8184
15	7.37	179.14	51.14	0.01955	147.0	1138.8	991.7	922.0	1069.0	0.2617	1.5526	1.8143
16	7.86	182.06	48.14	.02077	149.9	1140.0	990.0	920.0	1069.9	.2662	1.5429	1.8091
16.29	8	182.87	47.35	0.02112	150.8	1140.3	989.5	919.4	1070.2	0.2675	1.5402	1.8077
17	8.35	184.83	45.49	0.02198	152.7	1141.1	988.3	918.1	1070.8	0.2705	1.5337	1.8042
18	8.84	187.46	43.12	.02319	155.4	1142.1	986.7	916.2	1071.7	.2746	1.5250	1.7996
18.32	9	188.28	42.41	0.02358	156.2	1142.5	986.3	915.6	1071.8	0.2759	1.5223	1.7982
19	9.33	189.97	40.99	0.02439	157.9	1143.1	985.2	914.4	1072.3	0.2785	1.5168	1.7953
20	9.82	192.38	39.08	.02559	160.3	1144.1	983.8	912.7	1073.1	.2822	1.5089	1.7912
20.36	10	193.21	38.43	0.02602	161.1	1144.4	983.3	912.2	1073.3	0.2835	1.5062	1.7897
21	10.31	194.68	37.34	0.02678	162.6	1145.0	982.4	911.1	1073.8	0.2858	1.5015	1.7873
22	10.81	196.89	35.75	.02797	164.8	1145.9	981.1	909.6	1074.4	.2892	1.4944	1.7835
22.40	11	197.75	35.16	0.02844	165.7	1146.2	980.5	909.0	1074.6	0.2905	1.4916	1.7821
23	11.30	199.03	34.29	0.02916	167.0	1146.7	979.8	908.1	1075.1	0.2924	1.4876	1.7800
24	11.79	201.09	32.95	.03035	169.0	1147.5	978.5	906.6	1075.7	.2955	1.4810	1.7766
24.43	12	201.96	32.41	0.03086	169.9	1147.9	978.0	906.0	1075.9	0.2969	1.4783	1.7752
25	12.28	203.08	31.71	0.03153	170.1	1148.3	977.3	905.2	1076.2	0.2986	1.4747	1.7733
26	12.77	205.00	30.57	.03271	173.0	1149.1	976.1	903.8	1076.8	.3015	1.4687	1.7702
26.47	13	205.88	30.07	0.03326	173.8	1149.4	975.6	903.2	1077.0	0.3028	1.4659	1.7687
27	13.26	206.87	29.51	0.03388	174.8	1149.8	974.9	902.5	1077.3	0.3043	1.4629	1.7671
28	13.75	208.67	28.53	.03505	176.6	1150.5	973.8	901.2	1077.9	.3070	1.4572	1.7642
28.50	14	209.56	28.06	0.03564	177.5	1150.8	973.3	900.6	1078.1	0.3083	1.4545	1.7628
29	14.24	210.43	27.61	0.03622	178.4	1151.2	972.7	900.0	1078.4	0.3096	1.4518	1.7614
29.92	14.697	212	26.81	0.03730	180.0	1151.7	971.7	898.8	1078.8	0.3120	1.4469	1.7589
30	14.74	212.13	26.75	0.03739	180.1	1151.8	971.7	898.8	1078.9	0.3122	1.4465	1.7587

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
15	213.0	26.30	0.03802	181.0	1152.2	971.2	898.1	1079.1	0.3135	1.4438	1.7573
16	216.3	24.76	.04038	184.3	1153.4	969.1	895.8	1080.0	.3184	1.4337	1.7521
17	219.4	23.40	.04274	187.5	1154.6	967.1	893.5	1080.9	.3230	1.4242	1.7473
18	222.4	22.18	.04508	190.5	1155.7	965.2	891.4	1081.7	.3274	1.4153	1.7427
19	225.2	21.09	.04742	193.3	1156.7	963.4	889.3	1082.5	.3316	1.4068	1.7384
20	228.0	20.10	0.0498	196.0	1157.7	961.7	887.3	1083.3	0.3356	1.3987	1.7343
21	230.6	19.20	.0521	198.7	1158.7	960.0	885.4	1084.0	.3394	1.3910	1.7304
22	233.1	18.38	.0544	201.2	1159.6	958.4	883.6	1084.7	.3430	1.3837	1.7267
23	235.5	17.64	.0567	203.6	1160.4	956.8	881.8	1085.3	.3465	1.3766	1.7231
24	237.8	16.95	.0590	206.0	1161.3	955.3	880.1	1085.9	.3499	1.3698	1.7197
25	240.1	16.32	0.0613	208.2	1162.1	953.8	878.4	1086.5	0.3531	1.3633	1.7164
26	242.2	15.73	.0636	210.4	1162.8	952.4	876.8	1087.1	.3563	1.3570	1.7133
27	244.3	15.18	.0659	212.6	1163.6	951.0	875.2	1087.7	.3593	1.3510	1.7103
28	246.4	14.67	.0681	214.6	1164.3	949.7	873.7	1088.2	.3622	1.3452	1.7074
29	248.4	14.20	.0704	216.6	1165.0	948.4	872.2	1088.7	.3651	1.3395	1.7046
30	250.3	13.76	0.0727	218.6	1165.7	947.1	870.7	1089.2	0.3679	1.3340	1.7019
31	252.2	13.34	.0749	220.5	1166.3	945.8	869.3	1089.7	.3705	1.3287	1.6992
32	254.0	12.95	.0772	222.4	1166.9	944.6	867.9	1090.2	.3731	1.3236	1.6967
33	255.8	12.59	.0795	224.2	1167.5	943.4	866.5	1090.6	.3757	1.3186	1.6942
34	257.6	12.24	.0818	225.9	1168.1	942.2	865.2	1091.0	.3781	1.3137	1.6918
35	259.3	11.91	0.0840	227.7	1168.7	941.0	863.9	1091.5	0.3805	1.3090	1.6895
36	260.9	11.60	.0862	229.4	1169.2	939.9	862.7	1091.9	.3829	1.3044	1.6873
37	262.6	11.31	.0884	231.0	1169.8	938.8	861.4	1092.3	.3852	1.2999	1.6851
38	264.2	11.03	.0907	232.6	1170.3	937.7	860.2	1092.7	.3874	1.2956	1.6830
39	265.7	10.76	.0929	234.2	1170.8	936.6	859.0	1093.1	.3896	1.2913	1.6809
40	267.2	10.51	0.0951	235.8	1171.3	935.5	857.8	1093.4	0.3917	1.2871	1.6788
41	268.7	10.27	.0974	237.3	1171.8	934.5	856.7	1093.8	.3938	1.2831	1.6768
42	270.2	10.04	.0996	238.8	1172.2	933.5	855.5	1094.2	.3958	1.2791	1.6749
43	271.6	9.82	.1018	240.2	1172.7	932.5	854.4	1094.5	.3978	1.2752	1.6730
44	273.0	9.61	.1040	241.7	1173.2	931.5	853.3	1094.8	.3998	1.2714	1.6712
45	274.4	9.41	0.1062	243.1	1173.6	930.5	852.2	1095.2	0.4017	1.2677	1.6694
46	275.8	9.22	.1085	244.5	1174.0	929.6	851.2	1095.5	.4036	1.2640	1.6676
47	277.1	9.04	.1107	245.8	1174.4	928.6	850.1	1095.8	.4054	1.2605	1.6659
48	278.4	8.86	.1129	247.2	1174.8	927.7	849.1	1096.1	.4072	1.2570	1.6642
49	279.7	8.69	.1151	248.5	1175.2	926.8	848.1	1096.4	.4090	1.2535	1.6625
50	281.0	8.53	0.1173	249.8	1175.6	925.9	847.1	1096.7	0.4108	1.2501	1.6609
51	282.3	8.37	.1195	251.0	1176.0	925.0	846.1	1097.0	.4125	1.2468	1.6593
52	283.5	8.22	.1217	252.3	1176.4	924.1	845.1	1097.2	.4142	1.2436	1.6577
53	284.7	8.07	.1239	253.5	1176.7	923.2	844.2	1097.5	.4158	1.2404	1.6562
54	285.9	7.93	.1261	254.7	1177.1	922.4	843.2	1097.8	.4174	1.2373	1.6547
55	287.1	7.80	0.1283	255.9	1177.5	921.5	842.3	1098.0	0.4190	1.2342	1.6532
56	288.2	7.67	.1304	257.1	1177.8	920.7	841.4	1098.3	.4206	1.2311	1.6517
57	289.4	7.54	.1326	258.3	1178.1	919.8	840.4	1098.6	.4222	1.2281	1.6503
58	290.5	7.42	.1348	259.5	1178.5	919.0	839.5	1098.8	.4237	1.2252	1.6489
59	291.6	7.30	.1370	260.6	1178.8	918.2	838.6	1099.0	.4252	1.2223	1.6475
60	292.7	7.18	0.1392	261.7	1179.1	917.4	837.8	1099.3	0.4267	1.2195	1.6462
61	293.8	7.07	.1414	262.8	1179.4	916.6	836.9	1099.5	.4282	1.2167	1.6448
62	294.9	6.97	.1435	263.9	1179.7	915.8	836.0	1099.7	.4296	1.2139	1.6435
63	295.9	6.86	.1457	265.0	1180.0	915.0	835.2	1100.0	.4310	1.2112	1.6422
64	296.9	6.76	.1479	266.1	1180.3	914.3	834.3	1100.2	.4324	1.2085	1.6409
65	298.0	6.66	0.1501	267.1	1180.6	913.5	833.5	1100.4	0.4338	1.2058	1.6397
66	299.0	6.57	.1522	268.2	1180.9	912.7	832.7	1100.6	.4352	1.2032	1.6384
67	300.0	6.48	.1544	269.2	1181.2	912.0	831.9	1100.8	.4366	1.2006	1.6372
68	301.0	6.39	.1566	270.2	1181.5	911.2	831.1	1101.0	.4379	1.1981	1.6360
69	302.0	6.30	.1587	271.2	1181.7	910.5	830.3	1101.2	.4392	1.1956	1.6348

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
70	302.9	6.22	0.1609	272.2	1182.0	909.8	829.5	1101.4	0.4405	1.1931	1.6336
71	303.9	6.13	.1630	273.2	1182.3	909.1	828.7	1101.6	.4418	1.1907	1.6324
72	304.8	6.05	.1652	274.2	1182.5	908.3	827.9	1101.8	.4431	1.1883	1.6313
73	305.8	5.97	.1674	275.1	1182.8	907.6	827.1	1102.0	.4443	1.1859	1.6302
74	306.7	5.90	.1695	276.1	1183.0	906.9	826.4	1102.2	.4456	1.1835	1.6291
75	307.6	5.82	0.1717	277.0	1183.3	906.2	825.6	1102.4	0.4468	1.1812	1.6280
76	308.5	5.75	.1738	278.0	1183.5	905.5	824.9	1102.6	.4480	1.1789	1.6269
77	309.4	5.68	.1760	278.9	1183.8	904.9	824.1	1102.7	.4492	1.1767	1.6259
78	310.3	5.61	.1781	279.8	1184.0	904.2	823.4	1102.9	.4504	1.1744	1.6248
79	311.2	5.55	.1803	280.7	1184.2	903.5	822.6	1103.1	.4515	1.1722	1.6238
80	312.0	5.48	0.1824	281.6	1184.4	902.8	821.9	1103.2	0.4527	1.1700	1.6227
81	312.9	5.42	.1846	282.5	1184.7	902.2	821.2	1103.4	.4538	1.1679	1.6217
82	313.7	5.35	.1868	283.4	1184.9	901.5	820.5	1103.6	.4550	1.1657	1.6207
83	314.6	5.29	.1889	284.2	1185.1	900.9	819.8	1103.7	.4561	1.1636	1.6197
84	315.4	5.23	.1910	285.1	1185.3	900.2	819.1	1103.9	.4572	1.1615	1.6187
85	316.3	5.18	0.1932	286.0	1185.5	899.6	818.4	1104.1	0.4583	1.1595	1.6178
86	317.1	5.12	.1953	286.8	1185.7	898.9	817.7	1104.2	.4594	1.1574	1.6168
87	317.9	5.06	.1975	287.6	1185.9	898.3	817.0	1104.4	.4604	1.1554	1.6158
88	318.7	5.01	.1996	288.5	1186.1	897.7	816.3	1104.5	.4615	1.1534	1.6149
89	319.5	4.96	.2017	289.3	1186.3	897.1	815.7	1104.7	.4626	1.1514	1.6140
90	320.3	4.905	0.2039	290.1	1186.5	896.4	815.0	1104.8	0.4636	1.1495	1.6131
91	321.0	4.854	.2060	290.9	1186.7	895.8	814.3	1104.9	.4647	1.1475	1.6122
92	321.8	4.805	.2081	291.7	1186.9	895.2	813.7	1105.1	.4657	1.1456	1.6113
93	322.6	4.756	.2102	292.5	1187.1	894.6	813.0	1105.2	.4667	1.1437	1.6105
94	323.3	4.709	.2124	293.3	1187.3	894.0	812.4	1105.4	.4677	1.1419	1.6096
95	324.1	4.663	0.2145	294.1	1187.5	893.4	811.7	1105.5	0.4687	1.1400	1.6087
96	324.8	4.617	.2166	294.8	1187.7	892.8	811.1	1105.6	.4697	1.1381	1.6079
97	325.6	4.572	.2187	295.6	1187.8	892.2	810.5	1105.8	.4707	1.1363	1.6070
98	326.3	4.528	.2209	296.4	1188.0	891.6	809.8	1105.9	.4717	1.1345	1.6062
99	327.1	4.484	.2230	297.2	1188.2	891.0	809.2	1106.0	.4726	1.1327	1.6053
100	327.8	4.442	0.2251	297.9	1188.4	890.5	808.6	1106.2	0.4736	1.1309	1.6045
101	328.5	4.400	.2273	298.7	1188.5	889.9	808.0	1106.3	.4745	1.1291	1.6037
102	329.2	4.359	.2294	299.4	1188.7	889.3	807.4	1106.4	.4755	1.1274	1.6028
103	330.0	4.318	.2316	300.1	1188.9	888.7	806.7	1106.5	.4764	1.1256	1.6020
104	330.7	4.279	.2337	300.9	1189.0	888.2	806.1	1106.6	.4773	1.1239	1.6012
105	331.4	4.240	0.2358	301.6	1189.2	887.6	805.5	1106.8	0.4782	1.1222	1.6004
106	332.0	4.202	.2380	302.3	1189.4	887.1	804.9	1106.9	.4791	1.1205	1.5996
107	332.7	4.165	.2401	303.0	1189.5	886.5	804.3	1107.0	.4800	1.1189	1.5989
108	333.4	4.128	.2422	303.7	1189.7	885.9	803.8	1107.1	.4809	1.1172	1.5981
109	334.1	4.092	.2444	304.4	1189.8	885.4	803.2	1107.2	.4818	1.1155	1.5973
110	334.8	4.057	0.2465	305.1	1190.0	884.8	802.6	1107.3	0.4827	1.1138	1.5965
111	335.5	4.022	.2486	305.8	1190.1	884.3	802.0	1107.4	.4836	1.1122	1.5957
112	336.1	3.988	.2508	306.5	1190.3	883.7	801.4	1107.6	.4844	1.1106	1.5950
113	336.8	3.954	.2529	307.2	1190.4	883.2	800.9	1107.7	.4853	1.1090	1.5943
114	337.4	3.921	.2550	307.9	1190.6	882.7	800.3	1107.8	.4861	1.1074	1.5935
115	338.1	3.889	0.2572	308.6	1190.7	882.1	799.7	1107.9	0.4870	1.1058	1.5928
116	338.7	3.857	.2593	309.2	1190.8	881.6	799.2	1108.0	.4878	1.1043	1.5921
117	339.4	3.826	.2614	309.9	1191.0	881.1	798.6	1108.1	.4886	1.1027	1.5914
118	340.0	3.795	.2635	310.6	1191.1	880.6	798.0	1108.2	.4895	1.1012	1.5907
119	340.6	3.765	.2657	311.2	1191.2	880.0	797.5	1108.3	.4903	1.0997	1.5900
120	341.3	3.735	0.2678	311.9	1191.4	879.5	796.9	1108.4	0.4911	1.0982	1.5893
121	341.9	3.705	.2699	312.5	1191.5	879.0	796.4	1108.5	.4919	1.0967	1.5886
122	342.5	3.676	.2720	313.2	1191.6	878.5	795.8	1108.6	.4927	1.0952	1.5879
123	343.1	3.648	.2741	313.8	1191.8	878.0	795.3	1108.7	.4935	1.0937	1.5872
124	343.7	3.620	.2762	314.4	1191.9	877.5	794.8	1108.8	.4943	1.0922	1.5865

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
125	344.4	3.593	0.2783	315.1	1192.0	876.9	794.2	1108.8	0.4950	1.0908	1.5858
126	345.0	3.566	.2805	315.7	1192.1	876.4	793.7	1108.9	.4958	1.0894	1.5852
127	345.6	3.539	.2826	316.3	1192.3	875.9	793.2	1109.0	.4966	1.0879	1.5845
128	346.2	3.513	.2847	316.9	1192.4	875.4	792.6	1109.1	.4974	1.0865	1.5838
129	346.8	3.487	.2868	317.6	1192.5	874.9	792.1	1109.2	.4981	1.0851	1.5832
130	347.4	3.461	0.2889	318.2	1192.6	874.4	791.6	1109.3	0.4989	1.0836	1.5825
131	347.9	3.436	.2910	318.8	1192.7	873.9	791.0	1109.4	.4996	1.0822	1.5819
132	348.5	3.412	.2931	319.4	1192.9	873.5	790.5	1109.5	.5004	1.0808	1.5812
133	349.1	3.387	.2952	320.0	1193.0	873.0	790.0	1109.5	.5011	1.0795	1.5806
134	349.7	3.363	.2973	320.6	1193.1	872.5	789.5	1109.6	.5019	1.0781	1.5800
135	350.3	3.340	0.2994	321.2	1193.2	872.0	789.0	1109.7	0.5026	1.0767	1.5793
136	350.8	3.316	.3016	321.8	1193.3	871.5	788.5	1109.8	.5033	1.0754	1.5787
137	351.4	3.293	.3037	322.4	1193.4	871.0	788.0	1109.9	.5041	1.0740	1.5781
138	352.0	3.270	.3058	323.0	1193.5	870.5	787.4	1110.0	.5048	1.0727	1.5775
139	352.5	3.248	.3079	323.6	1193.6	870.1	786.9	1110.0	.5055	1.0714	1.5769
140	353.1	3.226	0.3100	324.2	1193.7	869.6	786.4	1110.1	0.5062	1.0700	1.5762
141	353.6	3.204	.3121	324.7	1193.8	869.1	785.9	1110.2	.5069	1.0687	1.5756
142	354.2	3.182	.3142	325.3	1193.9	868.6	785.4	1110.3	.5076	1.0674	1.5750
143	354.8	3.161	.3163	325.9	1194.0	868.2	785.0	1110.3	.5083	1.0661	1.5744
144	355.3	3.140	.3184	326.5	1194.1	867.7	784.5	1110.4	.5090	1.0648	1.5738
145	355.8	3.120	0.3206	327.0	1194.2	867.2	784.0	1110.5	0.5097	1.0636	1.5733
146	356.3	3.099	.3227	327.6	1194.3	866.8	783.5	1110.6	.5104	1.0623	1.5727
147	356.9	3.079	.3248	328.2	1194.4	866.3	783.0	1110.6	.5111	1.0610	1.5721
148	357.4	3.059	.3269	328.7	1194.5	865.8	782.5	1110.7	.5117	1.0598	1.5715
149	357.9	3.039	.3290	329.3	1194.6	865.4	782.0	1110.8	.5124	1.0585	1.5709
150	358.5	3.020	0.3311	329.8	1194.7	864.9	781.6	1110.9	0.5131	1.0573	1.5704
151	359.0	3.001	.3332	330.4	1194.8	864.5	781.1	1110.9	.5138	1.0561	1.5698
152	359.5	2.982	.3353	330.9	1194.9	864.0	780.6	1111.0	.5144	1.0548	1.5692
153	360.0	2.963	.3375	331.5	1195.0	863.6	780.1	1111.1	.5151	1.0536	1.5687
154	360.5	2.945	.3396	332.0	1195.1	863.1	779.7	1111.1	.5157	1.0524	1.5681
155	361.1	2.927	0.3417	332.5	1195.2	862.7	779.2	1111.2	0.5164	1.0512	1.5676
156	361.6	2.909	.3438	333.1	1195.3	862.3	778.7	1111.3	.5170	1.0500	1.5670
157	362.1	2.892	.3459	333.6	1195.4	861.8	778.3	1111.3	.5177	1.0488	1.5665
158	362.6	2.874	.3480	334.1	1195.5	861.4	777.8	1111.4	.5183	1.0476	1.5659
159	363.1	2.857	.3501	334.7	1195.6	860.9	777.3	1111.5	.5190	1.0464	1.5654
160	363.6	2.839	0.3522	335.2	1195.7	860.5	776.9	1111.5	0.5196	1.0453	1.5649
161	364.1	2.822	.3543	335.7	1195.8	860.0	776.4	1111.6	.5202	1.0441	1.5643
162	364.6	2.806	.3564	336.2	1195.8	859.6	776.0	1111.7	.5209	1.0429	1.5638
163	365.1	2.789	.3585	336.8	1195.9	859.2	775.5	1111.7	.5215	1.0418	1.5633
164	365.6	2.773	.3606	337.3	1196.0	858.7	775.1	1111.8	.5221	1.0406	1.5627
165	366.1	2.757	0.3627	337.8	1196.1	858.3	774.6	1111.8	0.5227	1.0395	1.5622
166	366.5	2.741	.3648	338.3	1196.2	857.9	774.2	1111.9	.5233	1.0384	1.5617
167	367.0	2.725	.3670	338.8	1196.2	857.4	773.7	1112.0	.5239	1.0373	1.5612
168	367.5	2.710	.3691	339.3	1196.3	857.0	773.3	1112.0	.5245	1.0361	1.5607
169	368.0	2.694	.3712	339.8	1196.4	856.6	772.8	1112.1	.5252	1.0350	1.5602
170	368.5	2.679	0.3733	340.3	1196.5	856.2	772.4	1112.1	0.5258	1.0339	1.5597
171	369.0	2.664	.3754	340.8	1196.6	855.7	771.9	1112.2	.5264	1.0328	1.5592
172	369.4	2.649	.3775	341.3	1196.6	855.3	771.5	1112.2	.5270	1.0317	1.5587
173	369.9	2.634	.3796	341.8	1196.7	854.9	771.1	1112.3	.5275	1.0306	1.5582
174	370.4	2.620	.3817	342.3	1196.8	854.5	770.6	1112.4	.5281	1.0295	1.5577
175	370.8	2.605	0.3838	342.8	1196.9	854.1	770.2	1112.4	0.5287	1.0284	1.5572
176	371.3	2.591	.3859	343.3	1196.9	853.6	769.8	1112.5	.5293	1.0274	1.5567
177	371.8	2.577	.3880	343.8	1197.0	853.2	769.3	1112.5	.5299	1.0263	1.5562
178	372.2	2.563	.3901	344.3	1197.1	852.8	768.9	1112.6	.5305	1.0252	1.5557
179	372.7	2.550	.3922	344.8	1197.2	852.4	768.5	1112.6	.5310	1.0242	1.5552

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v'	1/v'	i'	i''	r	ρ	u''	s'	r/T	s''
180	373.1	2.536	0.3943	345.2	1197.2	852.0	768.0	1112.7	0.5316	1.0231	1.5547
181	373.6	2.523	.3964	345.7	1197.3	851.6	767.6	1112.7	.5322	1.0221	1.5542
182	374.0	2.509	.3985	346.2	1197.4	851.2	767.2	1112.8	.5328	1.0210	1.5538
183	374.5	2.496	.4006	346.7	1197.4	850.8	766.8	1112.8	.5333	1.0200	1.5533
184	374.9	2.483	.4027	347.1	1197.5	850.4	766.4	1112.9	.5339	1.0189	1.5528
185	375.4	2.470	0.4048	347.6	1197.6	849.9	765.9	1112.9	0.5344	1.0179	1.5523
186	375.8	2.457	.4069	348.1	1197.6	849.5	765.5	1113.0	.5350	1.0169	1.5519
187	376.3	2.445	.4090	348.6	1197.7	849.1	765.1	1113.0	.5356	1.0159	1.5514
188	376.7	2.432	.4111	349.0	1197.8	848.7	764.7	1113.1	.5361	1.0148	1.5509
189	377.1	2.420	.4132	349.5	1197.8	848.3	764.3	1113.1	.5367	1.0138	1.5505
190	377.6	2.408	0.4154	350.0	1197.9	847.9	763.9	1113.2	0.5372	1.0128	1.5500
191	378.0	2.395	.4175	350.4	1197.9	847.5	763.4	1113.2	.5378	1.0118	1.5496
192	378.5	2.383	.4196	350.9	1198.0	847.1	763.0	1113.2	.5383	1.0108	1.5491
193	378.9	2.372	.4217	351.3	1198.1	846.7	762.6	1113.3	.5388	1.0099	1.5487
194	379.3	2.360	.4238	351.8	1198.1	846.3	762.2	1113.3	.5394	1.0089	1.5482
195	379.7	2.348	0.4259	352.2	1198.2	846.0	761.8	1113.4	0.5399	1.0079	1.5478
196	380.2	2.337	.4280	352.7	1198.2	845.6	761.4	1113.4	.5404	1.0069	1.5473
197	380.6	2.325	.4301	353.1	1198.3	845.2	761.0	1113.5	.5410	1.0059	1.5469
198	381.0	2.314	.4322	353.6	1198.4	844.8	760.6	1113.5	.5415	1.0049	1.5464
199	381.4	2.303	.4343	354.0	1198.4	844.4	760.2	1113.5	.5420	1.0040	1.5460
200	381.9	2.292	0.4364	354.5	1198.5	844.0	759.8	1113.6	0.5426	1.0030	1.5456
201	382.3	2.281	.4385	354.9	1198.5	843.6	759.4	1113.6	.5431	1.0020	1.5451
202	382.7	2.270	.4406	355.4	1198.6	843.2	759.0	1113.7	.5436	1.0011	1.5447
203	383.1	2.259	.4427	355.8	1198.6	842.9	758.6	1113.7	.5441	1.0001	1.5443
204	383.5	2.248	.4448	356.2	1198.7	842.5	758.2	1113.8	.5446	0.9992	1.5438
205	383.9	2.238	0.4469	356.7	1198.7	842.1	757.8	1113.8	0.5451	0.9983	1.5434
206	384.4	2.227	.4490	357.1	1198.8	841.7	757.4	1113.8	.5457	.9973	1.5430
207	384.8	2.217	.4511	357.5	1198.8	841.3	757.0	1113.9	.5462	.9964	1.5425
208	385.2	2.206	.4532	358.0	1198.9	840.9	756.7	1113.9	.5467	.9954	1.5421
209	385.6	2.196	.4553	358.4	1198.9	840.6	756.3	1114.0	.5472	.9945	1.5417
210	386.0	2.186	0.457	358.8	1199.0	840.2	755.9	1114.0	0.5477	0.9936	1.5413
211	386.4	2.176	.460	359.3	1199.0	839.8	755.5	1114.0	.5482	.9927	1.5409
212	386.8	2.166	.462	359.7	1199.1	839.4	755.1	1114.1	.5487	.9918	1.5405
213	387.2	2.156	.464	360.1	1199.1	839.0	754.7	1114.1	.5492	.9909	1.5400
214	387.6	2.147	.466	360.5	1199.2	838.7	754.3	1114.2	.5497	.9900	1.5396
215	388.0	2.137	0.468	361.0	1199.2	838.3	754.0	1114.2	0.5502	0.9890	1.5392
216	388.4	2.128	.470	361.4	1199.3	837.9	753.6	1114.2	.5507	.9881	1.5388
217	388.8	2.118	.472	361.8	1199.3	837.6	753.2	1114.2	.5511	.9872	1.5384
218	389.2	2.109	.474	362.2	1199.4	837.2	752.8	1114.3	.5516	.9864	1.5380
219	389.6	2.099	.476	362.6	1199.4	836.8	752.4	1114.3	.5521	.9855	1.5376
220	390.0	2.090	0.478	363.0	1199.5	836.5	752.1	1114.3	0.5526	0.9846	1.5372
221	390.3	2.081	.481	363.4	1199.5	836.1	751.7	1114.4	.5531	.9837	1.5368
222	390.7	2.072	.483	363.9	1199.6	835.7	751.3	1114.4	.5536	.9828	1.5364
223	391.1	2.063	.485	364.3	1199.6	835.4	750.9	1114.4	.5540	.9820	1.5360
224	391.5	2.054	.487	364.7	1199.7	835.0	750.6	1114.5	.5545	.9811	1.5356
225	391.9	2.045	0.489	365.1	1199.7	834.6	750.2	1114.5	0.5550	0.9802	1.5352
226	392.3	2.036	.491	365.5	1199.7	834.3	749.8	1114.5	.5555	.9794	1.5348
227	392.7	2.028	.493	365.9	1199.8	833.9	749.4	1114.6	.5559	.9785	1.5344
228	393.0	2.019	.495	366.3	1199.8	833.6	749.1	1114.6	.5564	.9777	1.5341
229	393.4	2.011	.497	366.7	1199.9	833.2	748.7	1114.6	.5569	.9768	1.5337
230	393.8	2.002	0.499	367.1	1199.9	832.8	748.3	1114.6	0.5573	0.9760	1.5333
231	394.2	1.994	.502	367.5	1199.9	832.5	748.0	1114.7	.5578	.9751	1.5329
232	394.5	1.985	.504	367.9	1200.0	832.1	747.6	1114.7	.5583	.9742	1.5325
233	394.9	1.977	.506	368.3	1200.0	831.7	747.2	1114.7	.5587	.9734	1.5321
234	395.3	1.969	.508	368.7	1200.1	831.4	746.9	1114.8	.5592	.9726	1.5318

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
235	395.6	1.961	0.510	369.1	1200.1	831.0	746.5	1114.8	0.5597	0.9717	1.5314
236	396.0	1.953	.512	369.5	1200.1	830.7	746.2	1114.8	.5601	.9709	1.5310
237	396.4	1.945	.514	369.9	1200.2	830.3	745.8	1114.8	.5606	.9701	1.5306
238	396.8	1.937	.516	370.3	1200.2	830.0	745.4	1114.9	.5610	.9692	1.5302
239	397.1	1.929	.518	370.6	1200.2	829.6	745.1	1114.9	.5615	.9684	1.5299
240	397.5	1.921	0.521	371.0	1200.3	829.3	744.7	1114.9	0.5619	0.9676	1.5295
241	397.9	1.913	.523	371.4	1200.3	828.9	744.4	1114.9	.5624	.9668	1.5291
242	398.2	1.906	.525	371.8	1200.4	828.6	744.0	1115.0	.5628	.9660	1.5288
243	398.6	1.898	.527	372.2	1200.4	828.2	743.6	1115.0	.5633	.9651	1.5284
244	398.9	1.890	.529	372.6	1200.4	827.8	743.3	1115.0	.5637	.9643	1.5280
245	399.3	1.883	0.531	373.0	1200.5	827.5	742.9	1115.1	0.5641	0.9635	1.5276
246	399.7	1.876	.533	373.3	1200.5	827.2	742.6	1115.1	.5646	.9627	1.5273
247	400.0	1.868	.535	373.7	1200.5	826.8	742.2	1115.1	.5650	.9619	1.5269
248	400.4	1.861	.537	374.1	1200.6	826.5	741.9	1115.1	.5655	.9611	1.5266
249	400.7	1.854	.540	374.5	1200.6	826.1	741.5	1115.1	.5659	.9603	1.5262
250	401.1	1.846	0.542	374.9	1200.6	825.8	741.2	1115.2	0.5663	0.9595	1.5258
251	401.4	1.839	.544	375.2	1200.7	825.5	740.8	1115.2	.5668	.9587	1.5255
252	401.8	1.832	.546	375.6	1200.7	825.1	740.5	1115.2	.5672	.9579	1.5251
253	402.1	1.825	.548	376.0	1200.7	824.8	740.1	1115.2	.5676	.9572	1.5248
254	402.5	1.818	.550	376.4	1200.8	824.4	739.8	1115.3	.5680	.9564	1.5244
255	402.9	1.811	0.552	376.7	1200.8	824.1	739.5	1115.3	0.5685	0.9556	1.5241
256	403.2	1.804	.554	377.1	1200.8	823.7	739.1	1115.3	.5689	.9548	1.5237
257	403.5	1.798	.556	377.5	1200.9	823.4	738.8	1115.3	.5693	.9540	1.5233
258	403.9	1.791	.558	377.8	1200.9	823.1	738.4	1115.3	.5697	.9533	1.5230
259	404.2	1.784	.561	378.2	1200.9	822.7	738.1	1115.4	.5702	.9525	1.5227
260	404.5	1.777	0.563	378.6	1201.0	822.4	737.7	1115.4	0.5706	0.9517	1.5223
261	404.9	1.771	.565	378.9	1201.0	822.1	737.4	1115.4	.5710	.9510	1.5220
262	405.2	1.764	.567	379.3	1201.0	821.7	737.1	1115.4	.5714	.9502	1.5216
263	405.6	1.758	.569	379.7	1201.0	821.4	736.7	1115.5	.5718	.9494	1.5213
264	405.9	1.751	.571	380.0	1201.1	821.0	736.4	1115.5	.5722	.9487	1.5209
265	406.2	1.745	0.573	380.4	1201.1	820.7	736.0	1115.5	0.5727	0.9479	1.5206
266	406.6	1.738	.575	380.7	1201.1	820.4	735.7	1115.5	.5731	.9472	1.5202
267	406.9	1.732	.577	381.1	1201.1	820.0	735.4	1115.5	.5735	.9464	1.5199
268	407.2	1.726	.580	381.5	1201.2	819.7	735.0	1115.6	.5739	.9457	1.5196
269	407.6	1.720	.582	381.8	1201.2	819.4	734.7	1115.6	.5743	.9449	1.5192
270	407.9	1.713	0.584	382.2	1201.2	819.1	734.4	1115.6	0.5747	0.9442	1.5189
271	408.2	1.707	.586	382.5	1201.3	818.7	734.0	1115.6	.5751	.9434	1.5185
272	408.6	1.701	.588	382.9	1201.3	818.4	733.7	1115.6	.5755	.9427	1.5182
273	408.9	1.695	.590	383.2	1201.3	818.1	733.4	1115.7	.5759	.9420	1.5179
274	409.2	1.689	.592	383.6	1201.3	817.7	733.0	1115.7	.5763	.9412	1.5175
275	409.6	1.683	0.594	383.9	1201.4	817.4	732.7	1115.7	0.5767	0.9405	1.5172
276	409.9	1.677	.596	384.3	1201.4	817.1	732.4	1115.7	.5771	.9398	1.5169
277	410.2	1.671	.598	384.6	1201.4	816.8	732.1	1115.7	.5775	.9390	1.5165
278	410.5	1.665	.601	385.0	1201.4	816.4	731.7	1115.7	.5779	.9383	1.5162
279	410.9	1.660	.603	385.3	1201.5	816.1	731.4	1115.7	.5783	.9376	1.5159
280	411.2	1.654	0.605	385.7	1201.5	815.8	731.1	1115.8	0.5787	0.9369	1.5156
281	411.5	1.648	.607	386.0	1201.5	815.5	730.7	1115.8	.5791	.9361	1.5152
282	411.8	1.642	.609	386.4	1201.5	815.2	730.4	1115.8	.5795	.9354	1.5149
283	412.1	1.637	.611	386.7	1201.5	814.8	730.1	1115.8	.5799	.9347	1.5146
284	412.5	1.631	.613	387.1	1201.6	814.5	729.8	1115.8	.5803	.9340	1.5143
285	412.8	1.625	0.615	387.4	1201.6	814.2	729.5	1115.8	0.5806	0.9333	1.5139
286	413.1	1.620	.617	387.7	1201.6	813.9	729.1	1115.9	.5810	.9326	1.5136
287	413.4	1.614	.620	388.1	1201.6	813.5	728.8	1115.9	.5814	.9319	1.5133
288	413.7	1.609	.622	388.4	1201.6	813.2	728.5	1115.9	.5818	.9312	1.5130
289	414.1	1.603	.624	388.8	1201.7	812.9	728.2	1115.9	.5822	.9305	1.5127

Pressure, lb. per sq. in.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
290	414.4	1.598	0.626	389.1	1201.7	812.6	727.9	1115.9	0.5826	0.9298	1.5123
291	414.7	1.592	.628	389.4	1201.7	812.3	727.5	1115.9	.5829	.9291	1.5120
292	415.0	1.587	.630	389.8	1201.7	811.9	727.2	1115.9	.5833	.9284	1.5117
293	415.3	1.582	.632	390.1	1201.7	811.6	726.9	1116.0	.5837	.9277	1.5114
294	415.6	1.576	.634	390.5	1201.8	811.3	726.6	1116.0	.5841	.9270	1.5111
295	415.9	1.571	0.636	390.8	1201.8	811.0	726.3	1116.0	0.5845	0.9263	1.5108
296	416.2	1.566	.638	391.1	1201.8	810.7	725.9	1116.0	.5848	.9256	1.5105
297	416.5	1.561	.641	391.4	1201.8	810.4	725.6	1116.0	.5852	.9249	1.5102
298	416.9	1.556	.643	391.8	1201.8	810.1	725.3	1116.0	.5856	.9243	1.5098
299	417.2	1.551	.645	392.1	1201.9	809.8	725.0	1116.0	.5860	.9236	1.5095
300	417.5	1.545	0.647	392.4	1201.9	809.4	724.7	1116.0	0.5863	0.9229	1.5092
305	419.0	1.520	.658	394.1	1202.0	807.9	723.1	1116.1	.5882	.9195	1.5077
310	420.5	1.496	.668	395.7	1202.0	806.4	721.6	1116.2	.5900	.9162	1.5062
315	421.0	1.473	.679	397.3	1202.1	804.8	720.1	1116.2	.5918	.9129	1.5047
320	423.4	1.450	.690	398.9	1202.2	803.3	718.5	1116.3	.5935	.9097	1.5032
325	424.9	1.428	0.700	400.4	1202.2	801.8	717.0	1116.3	0.5953	0.9065	1.5018
330	426.3	1.407	.711	402.0	1202.3	800.3	715.6	1116.3	.5970	.9034	1.5004
335	427.7	1.386	.721	403.5	1202.3	798.9	714.1	1116.4	.5987	.9003	1.4990
340	429.1	1.366	.732	405.0	1202.4	797.4	712.6	1116.4	.6004	.8972	1.4976
345	430.5	1.346	.743	406.5	1202.4	795.9	711.2	1116.4	.6020	.8942	1.4962
350	431.9	1.327	0.753	408.0	1202.5	794.5	709.7	1116.4	0.6036	0.8912	1.4949
355	433.2	1.309	.764	409.4	1202.5	793.1	708.3	1116.5	.6052	.8883	1.4935
360	434.6	1.291	.775	410.9	1202.5	791.6	706.9	1116.5	.6068	.8854	1.4922
365	435.9	1.273	.785	412.3	1202.5	790.2	705.5	1116.5	.6084	.8825	1.4909
370	437.2	1.256	.796	413.7	1202.6	788.8	704.1	1116.5	.6100	.8796	1.4896
375	438.5	1.239	0.807	415.1	1202.6	787.5	702.7	1116.5	0.6115	0.8768	1.4884
380	439.8	1.223	.817	416.5	1202.6	786.1	701.4	1116.5	.6130	.8741	1.4871
385	441.0	1.207	.828	417.9	1202.6	784.7	700.0	1116.5	.6146	.8713	1.4859
390	442.3	1.192	.839	419.3	1202.6	783.3	698.7	1116.5	.6161	.8686	1.4847
395	443.5	1.177	.850	420.6	1202.6	781.9	697.3	1116.5	.6175	.8659	1.4834
400	444.8	1.162	0.860	422.0	1202.5	780.6	695.9	1116.5	0.6190	0.8631	1.4821
410	447.2	1.134	.882	424.6	1202.5	777.9	693.3	1116.4	.6219	.8578	1.4797
420	449.6	1.107	.903	427.2	1202.4	775.2	690.7	1116.3	.6247	.8526	1.4773
430	451.9	1.081	.925	429.8	1202.4	772.6	688.1	1116.3	.6275	.8476	1.4750
440	454.2	1.056	.947	432.3	1202.3	770.0	685.6	1116.2	.6302	.8426	1.4728
450	456.5	1.033	0.968	434.8	1202.2	767.4	683.1	1116.2	0.6329	0.8377	1.4706
460	458.7	1.010	0.990	437.2	1202.1	764.9	680.6	1116.1	.6355	.8330	1.4685
470	460.9	0.988	1.012	439.6	1202.0	762.4	678.1	1116.0	.6381	.8283	1.4664
480	463.1	.968	1.033	442.0	1201.9	759.9	675.6	1115.9	.6406	.8237	1.4643
490	465.2	.948	1.055	444.3	1201.8	757.5	673.3	1115.8	.6431	.8191	1.4622
500	467.2	0.928	1.077	446.6	1201.7	755.0	670.9	1115.7	0.6455	0.8146	1.4601
520	471.3	.892	1.121	451.1	1201.3	750.2	666.2	1115.4	.6503	.8059	1.4562
540	475.3	.858	1.165	455.5	1201.0	745.5	661.7	1115.1	.6549	.7975	1.4524
560	479.1	.827	1.210	459.8	1200.6	740.9	657.2	1114.8	.6594	.7893	1.4487
580	482.8	.798	1.254	463.9	1200.2	736.3	652.8	1114.6	.6637	.7813	1.4450
600	486.5	0.770	1.30	468.0	1199.8	731.8	648.5	1114.3	0.6679	0.7735	1.4414
650	495.2	.708	1.41	477.8	1198.7	720.9	638.0	1113.4	.6780	.7550	1.4330
700	503.4	.656	1.52	487.1	1197.4	710.3	627.9	1112.3	.6874	.7376	1.4250
750	511.1	.610	1.64	495.9	1195.9	700.0	618.2	1111.2	.6963	.7212	1.4175
800	518.5	.570	1.76	504.3	1194.4	690.1	608.8	1110.0	.7048	.7056	1.4104
850	525.5	0.534	1.87	512.5	1192.8	680.4	599.7	1108.8	0.7128	0.6907	1.4035
900	532.3	.502	1.99	520.3	1191.1	670.8	590.8	1107.5	.7205	.6764	1.3969
1000	544.9	.447	2.24	535.2	1187.6	652.4	573.6	1104.7	.7349	.6496	1.3845
1100	556.6	.403	2.48	549.1	1183.8	634.7	557.3	1101.8	.7482	.6247	1.3729
1200	567.7	.364	2.74	562.3	1179.7	617.6	541.8	1098.8	.7607	.6015	1.3622

TABLE 2

PROPERTIES OF SATURATED STEAM

TEMPERATURES

Temp., °F.	Pressure		Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
	Lb. per sq. in.	In. of mercury			of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	—	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
32	0.0887	0.1806	3296	0.000304	0.0	1073.0	1073.0	1018.9	1018.9	0.0	2.1826	2.1826
33	.0923	.1880	3173	.000315	1.01	1073.5	1072.5	1018.2	1019.2	.0021	2.1771	2.1792
34	.0961	.1957	3054	.000327	2.01	1074.0	1072.0	1017.6	1019.6	.0041	2.1717	2.1758
35	0.1000	0.2036	2941	0.000340	3.02	1074.4	1071.4	1017.0	1020.0	0.0062	2.1662	2.1724
36	.1041	.2119	2832	.000353	4.03	1074.9	1070.9	1016.3	1020.3	.0082	2.1608	2.1690
37	.1083	.2204	2728	.000367	5.04	1075.4	1070.4	1015.7	1020.7	.0102	2.1554	2.1656
38	.1126	.2292	2628	.000381	6.04	1075.9	1069.8	1015.0	1021.1	.0122	2.1500	2.1622
39	.1171	.2384	2533	.000395	7.05	1076.3	1069.3	1014.4	1021.4	.0143	2.1446	2.1588
40	0.1217	0.2478	2441	0.000410	8.05	1076.8	1068.8	1013.7	1021.8	0.0163	2.1392	2.1555
41	.1265	.2576	2352	.000425	9.06	1077.4	1068.3	1013.1	1022.2	.0183	2.1339	2.1522
42	.1315	.2678	2268	.000441	10.06	1077.8	1067.7	1012.5	1022.5	.0203	2.1286	2.1489
43	.1367	.2783	2187	.000457	11.06	1078.2	1067.2	1011.8	1022.9	.0223	2.1233	2.1456
44	.1420	.2891	2109	.000474	12.07	1078.7	1066.6	1011.2	1023.2	.0243	2.1180	2.1423
45	0.1475	0.3003	2034	0.000492	13.07	1079.2	1066.1	1010.5	1023.6	0.0262	2.1128	2.1390
46	.1532	.3120	1962	.000510	14.07	1079.6	1065.6	1009.9	1024.0	.0282	2.1076	2.1358
47	.1591	.3240	1893	.000528	15.07	1080.1	1065.0	1009.3	1024.3	.0302	2.1024	2.1326
48	.1652	.3364	1827	.000547	16.07	1080.6	1064.5	1008.6	1024.7	.0322	2.0972	2.1294
49	.1715	.3492	1763	.000567	17.08	1081.1	1064.0	1008.0	1025.1	.0342	2.0920	2.1262
50	0.1780	0.3624	1702	0.000588	18.08	1081.5	1063.5	1007.3	1025.4	0.0361	2.0869	2.1230
51	.1848	.3761	1643	.000609	19.08	1082.0	1062.9	1006.7	1025.8	.0381	2.0817	2.1198
52	.1918	.3903	1587	.000631	20.08	1082.5	1062.4	1006.1	1026.1	.0400	2.0766	2.1167
53	.1989	.4049	1532	.000653	21.08	1082.9	1061.9	1005.4	1026.5	.0420	2.0715	2.1135
54	.2063	.4200	1480	.000676	22.08	1083.4	1061.3	1004.8	1026.9	.0439	2.0665	2.1104
55	0.2140	0.4356	1430	0.000699	23.08	1083.9	1060.8	1004.1	1027.2	0.0459	2.0614	2.1073
56	.2219	.4517	1382	.000724	24.08	1084.4	1060.3	1003.5	1027.6	.0478	2.0564	2.1042
57	.2300	.4684	1335	.000749	25.08	1084.8	1059.7	1002.9	1028.0	.0498	2.0514	2.1012
58	.2384	.4855	1290	.000775	26.08	1085.3	1059.2	1002.2	1028.3	.0517	2.0464	2.0981
59	.2471	.5032	1248	.000802	27.08	1085.8	1058.7	1001.6	1028.7	.0536	2.0414	2.0951
60	0.2561	0.5214	1206	0.000829	28.08	1086.2	1058.1	1000.9	1029.0	0.0566	2.0365	2.0920
61	.2654	.5403	1166	.000858	29.08	1086.7	1057.6	1000.3	1029.4	.0575	2.0315	2.0890
62	.2749	.5597	1128	.000887	30.08	1087.2	1057.1	999.7	1029.7	.0594	2.0266	2.0860
63	.2848	.5798	1091	.000917	31.08	1087.6	1056.5	999.0	1030.1	.0613	2.0217	2.0830
64	.2949	.6005	1055	.000948	32.08	1088.1	1056.0	998.4	1030.5	.0632	2.0168	2.0801
65	0.3054	0.6218	1021	0.000979	33.08	1088.6	1055.5	997.7	1030.8	0.0652	2.0120	2.0771
66	.3162	.6438	988	.001012	34.08	1089.0	1054.9	997.1	1031.2	.0671	2.0071	2.0742
67	.3273	.6664	956	.001046	35.08	1089.5	1054.4	996.4	1031.5	.0690	2.0023	2.0712
68	.3388	.6898	926	.001080	36.08	1089.9	1053.9	995.8	1031.9	.0708	1.9975	2.0683
69	.3506	.7139	896	.001116	37.07	1090.4	1053.3	995.1	1032.2	.0727	1.9927	2.0654
70	0.3628	0.7386	868	0.001153	38.07	1090.9	1052.8	994.5	1032.6	0.0746	1.9879	2.0625
71	.3754	.7642	840	.001190	39.07	1091.3	1052.2	993.9	1032.9	.0765	1.9831	2.0596
72	.3883	.7906	814	.001229	40.07	1091.8	1051.7	993.2	1033.3	.0784	1.9784	2.0568
73	.4016	.8177	788	.001269	41.07	1092.3	1051.2	992.6	1033.6	.0803	1.9737	2.0540
74	.4153	.8456	763	.001310	42.07	1092.7	1050.6	991.9	1034.0	.0821	1.9690	2.0511
75	0.4295	0.8744	740	0.001352	43.06	1093.2	1050.1	991.3	1034.4	0.0840	1.9643	2.0483
76	.4440	.9040	717	.001395	44.06	1093.6	1049.6	990.6	1034.7	.0859	1.9596	2.0455
77	.4590	.9345	695	.001439	45.06	1094.1	1049.0	990.0	1035.1	.0877	1.9550	2.0427
78	.4744	.9658	673	.001485	46.06	1094.6	1048.5	989.3	1035.4	.0896	1.9503	2.0399
79	.4903	.9981	653	.001532	47.06	1095.0	1048.0	988.7	1035.8	.0914	1.9457	2.0371

Temp., °F.	Pressure		Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
	Lb. per sq. in.	In. of mercury			of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	—	v′	1/v′	i′	i″	r	ρ	u″	s′	r/T	s″
80	0.507	1.031	632.9	0.001580	48.05	1095.5	1047.4	988.0	1036.1	0.0933	1.9411	2.0344
81	.523	1.066	613.7	.001629	49.05	1095.9	1046.9	987.4	1036.5	.0951	1.9365	2.0316
82	.541	1.101	595.2	.001680	50.05	1096.4	1046.3	986.8	1036.8	.0970	1.9319	2.0289
83	.558	1.137	577.4	.001732	51.05	1096.9	1045.8	986.1	1037.2	.0988	1.9274	2.0262
84	.577	1.174	560.0	.001786	52.04	1097.3	1045.3	985.5	1037.5	.1007	1.9228	2.0235
85	0.596	1.212	543.3	0.001841	53.04	1097.8	1044.7	984.8	1037.9	0.1025	1.9183	2.0208
86	.615	1.251	527.2	.001897	54.04	1098.2	1044.2	984.2	1038.2	.1043	1.9138	2.0181
87	.635	1.292	511.6	.001955	55.04	1098.7	1043.6	983.5	1038.6	.1061	1.9093	2.0155
88	.655	1.334	496.6	.002014	56.03	1099.1	1043.1	982.9	1038.9	.1080	1.9048	2.0128
89	.676	1.377	482.0	.002075	57.03	1099.6	1042.6	982.2	1039.3	.1098	1.9004	2.0102
90	0.698	1.421	467.9	0.002137	58.03	1100.0	1042.0	981.6	1039.6	0.1116	1.8959	2.0075
91	.720	1.466	454.3	.002201	59.03	1100.5	1041.5	980.9	1040.0	.1134	1.8915	2.0049
92	.743	1.512	441.2	.002267	60.02	1101.0	1041.0	980.3	1040.3	.1152	1.8871	2.0023
93	.766	1.560	428.4	.002334	61.02	1101.4	1040.4	979.6	1040.7	.1170	1.8827	1.9997
94	.790	1.609	416.1	.002403	62.02	1101.9	1039.9	979.0	1041.0	.1188	1.8783	1.9972
95	0.815	1.659	404.2	0.002474	63.01	1102.3	1039.3	978.3	1041.3	0.1206	1.8740	1.9946
96	.840	1.710	392.7	.002547	64.01	1102.8	1038.8	977.7	1041.7	.1224	1.8696	1.9920
97	.866	1.763	381.6	.002621	65.01	1103.2	1038.2	977.0	1042.0	.1242	1.8653	1.9895
98	.893	1.818	370.8	.002697	66.01	1103.7	1037.7	976.4	1042.4	.1260	1.8610	1.9870
99	.920	1.874	360.4	.002775	67.00	1104.1	1037.1	975.7	1042.7	.1278	1.8566	1.9844
100	0.949	1.931	350.3	0.002855	68.00	1104.6	1036.6	975.1	1043.1	0.1296	1.8523	1.9819
101	0.978	1.990	340.5	.002937	69.00	1105.0	1036.0	974.4	1043.4	.1313	1.8481	1.9794
102	1.008	2.051	331.1	.003021	69.99	1105.5	1035.5	973.8	1043.8	.1331	1.8438	1.9769
103	1.038	2.113	321.9	.003107	70.99	1105.9	1034.9	973.1	1044.1	.1349	1.8396	1.9745
104	1.069	2.176	313.0	.003195	71.99	1106.4	1034.4	972.4	1044.4	.1367	1.8353	1.9720
105	1.101	2.241	304.4	0.003285	72.98	1106.8	1033.9	971.8	1044.8	0.1384	1.8311	1.9695
106	1.134	2.308	296.1	.003377	73.99	1107.3	1033.3	971.1	1045.1	.1402	1.8269	1.9671
107	1.168	2.377	288.1	.003472	74.98	1107.7	1032.8	970.5	1045.5	.1420	1.8227	1.9647
108	1.202	2.448	280.3	.003568	75.97	1108.2	1032.2	969.8	1045.8	.1437	1.8185	1.9623
109	1.238	2.520	272.7	.003667	76.97	1108.6	1031.7	969.2	1046.2	.1455	1.8144	1.9599
110	1.274	2.594	265.4	0.003769	77.97	1109.1	1031.1	968.5	1046.5	0.1472	1.8102	1.9575
111	1.311	2.670	258.2	.003873	78.96	1109.5	1030.6	967.9	1046.8	.1490	1.8061	1.9551
112	1.350	2.748	251.3	.003979	79.96	1110.0	1030.0	967.2	1047.2	.1507	1.8020	1.9527
113	1.389	2.827	244.7	.004087	80.96	1110.4	1029.5	966.5	1047.5	.1525	1.7979	1.9503
114	1.429	2.909	238.2	.004198	81.96	1110.9	1028.9	965.9	1047.9	.1542	1.7938	1.9480
115	1.470	2.993	231.9	0.004312	82.95	1111.3	1028.4	965.2	1048.2	0.1560	1.7897	1.9456
116	1.512	3.079	225.8	.004428	83.95	1111.8	1027.8	964.6	1048.5	.1577	1.7856	1.9433
117	1.555	3.167	219.9	.004547	84.95	1112.2	1027.3	963.9	1048.9	.1594	1.7815	1.9409
118	1.600	3.257	214.2	.004669	85.94	1112.6	1026.7	963.3	1049.2	.1611	1.7775	1.9386
119	1.645	3.349	208.6	.004793	86.94	1113.1	1026.1	962.6	1049.5	.1629	1.7735	1.9363
120	1.692	3.444	203.2	0.00492	87.94	1113.5	1025.6	961.9	1049.9	0.1646	1.7695	1.9341
121	1.739	3.541	198.0	.00505	88.93	1114.0	1025.0	961.3	1050.2	.1663	1.7655	1.9318
122	1.788	3.640	192.9	.00518	89.93	1114.4	1024.5	960.6	1050.5	.1680	1.7615	1.9295
123	1.838	3.741	188.0	.00532	90.93	1114.8	1023.9	959.9	1050.9	.1697	1.7575	1.9272
124	1.889	3.845	183.2	.00546	91.93	1115.3	1023.4	959.3	1051.2	.1715	1.7535	1.9250
125	1.941	3.952	178.6	0.00560	92.92	1115.7	1022.8	958.6	1051.5	0.1732	1.7496	1.9227
126	1.995	4.061	174.1	.00574	93.92	1116.2	1022.2	957.9	1051.9	.1749	1.7456	1.9205
127	2.049	4.172	169.7	.00589	94.92	1116.6	1021.7	957.3	1052.2	.1766	1.7417	1.9183
128	2.105	4.286	165.5	.00604	95.92	1117.0	1021.1	956.6	1052.5	.1783	1.7378	1.9161
129	2.163	4.403	161.3	.00620	96.91	1117.5	1020.6	956.0	1052.9	.1800	1.7339	1.9139
130	2.221	4.523	157.3	0.00636	97.91	1117.9	1020.0	955.3	1053.2	0.1817	1.7300	1.9117
131	2.281	4.645	153.4	.00652	98.91	1118.4	1019.5	954.6	1053.5	.1834	1.7261	1.9095
132	2.343	4.770	149.7	.00668	99.91	1118.8	1018.9	954.0	1053.9	.1850	1.7223	1.9073
133	2.406	4.898	146.0	.00685	100.91	1119.2	1018.3	953.3	1054.2	.1867	1.7184	1.9051
134	2.470	5.029	142.4	.00702	101.90	1119.7	1017.8	952.6	1054.5	.1884	1.7146	1.9030

Temp., °F.	Pressure		Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
	Lb. per sq. in.	In. of mercury			of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	—	v'	$1/v'$	i'	i''	r	ρ	u''	s'	r/T	s''
135	2.536	5.16	138.9	0.00720	102.90	1120.1	1017.2	952.0	1054.9	0.1901	1.7107	1.9008
136	2.603	5.30	135.6	.00738	103.90	1120.5	1016.6	951.3	1055.2	.1918	1.7069	1.8987
137	2.672	5.44	132.3	.00756	104.90	1121.0	1016.1	950.6	1055.5	.1935	1.7031	1.8966
138	2.742	5.58	129.1	.00775	105.90	1121.4	1015.5	950.0	1055.9	.1951	1.6993	1.8944
139	2.814	5.73	126.0	.00794	106.90	1121.8	1014.9	949.3	1056.2	.1968	1.6955	1.8923
140	2.887	5.88	123.0	0.00813	107.89	1122.3	1014.4	948.6	1056.5	0.1985	1.6918	1.8902
141	2.962	6.03	120.1	.00833	108.89	1122.7	1013.8	948.0	1056.8	.2001	1.6880	1.8881
142	3.039	6.19	117.2	.00853	109.89	1123.1	1013.3	947.3	1057.2	.2018	1.6842	1.8860
143	3.118	6.35	114.5	.00874	110.89	1123.6	1012.7	946.6	1057.5	.2034	1.6805	1.8839
144	3.198	6.51	111.8	.00895	111.89	1124.0	1012.1	945.9	1057.8	.2051	1.6768	1.8819
145	3.280	6.68	109.2	0.00916	112.89	1124.4	1011.5	945.3	1058.1	0.2067	1.6731	1.8798
146	3.363	6.85	106.6	.00938	113.89	1124.9	1011.0	944.6	1058.5	.2084	1.6694	1.8778
147	3.449	7.02	104.1	.00960	114.89	1125.3	1010.4	943.9	1058.8	.2100	1.6657	1.8757
148	3.536	7.20	101.7	.00983	115.88	1125.7	1009.8	943.3	1059.1	.2117	1.6620	1.8737
149	3.625	7.38	99.4	.01006	116.88	1126.1	1009.3	942.6	1059.5	.2133	1.6583	1.8717
150	3.716	7.57	97.1	0.01030	117.88	1126.6	1008.7	941.9	1059.8	0.2150	1.6547	1.8697
151	3.809	7.76	94.9	.01054	118.88	1127.0	1008.1	941.2	1060.1	.2166	1.6510	1.8676
152	3.904	7.95	92.7	.01079	119.88	1127.4	1007.5	940.6	1060.4	.2182	1.6474	1.8656
153	4.001	8.15	90.6	.01104	120.88	1127.8	1007.0	939.9	1060.7	.2199	1.6438	1.8636
154	4.100	8.35	88.5	.01130	121.88	1128.3	1006.4	939.2	1061.1	.2215	1.6402	1.8617
155	4.201	8.55	86.5	0.01156	122.88	1128.7	1005.8	938.5	1061.4	0.2231	1.6366	1.8597
156	4.305	8.76	84.6	.01182	123.88	1129.1	1005.2	937.8	1061.7	.2248	1.6330	1.8577
157	4.410	8.98	82.7	.01209	124.88	1129.6	1004.7	937.2	1062.0	.2264	1.6294	1.8558
158	4.518	9.20	80.8	.01237	125.88	1130.0	1004.1	936.5	1062.4	.2280	1.6258	1.8538
159	4.627	9.42	79.0	.01265	126.88	1130.4	1003.5	935.8	1062.7	.2296	1.6222	1.8518
160	4.739	9.65	77.30	0.01294	127.88	1130.8	1002.9	935.1	1063.0	0.2312	1.6187	1.8499
161	4.853	9.88	75.59	.01323	128.87	1131.2	1002.4	934.4	1063.3	.2328	1.6151	1.8480
162	4.970	10.12	73.93	.01353	129.87	1131.6	1001.8	933.8	1063.6	.2344	1.6116	1.8460
163	5.089	10.36	72.31	.01383	130.87	1132.1	1001.2	933.1	1063.9	.2360	1.6081	1.8441
164	5.210	10.61	70.73	.01414	131.87	1132.5	1000.6	932.4	1064.3	.2376	1.6046	1.8422
165	5.334	10.86	69.19	0.01445	132.88	1132.9	1000.0	931.7	1064.6	0.2392	1.6011	1.8403
166	5.460	11.12	67.69	.01477	133.88	1133.3	999.4	931.0	1064.9	.2408	1.5976	1.8384
167	5.589	11.38	66.23	.01510	134.88	1133.7	998.9	930.3	1065.2	.2424	1.5941	1.8365
168	5.720	11.65	64.81	.01543	135.88	1134.2	998.3	929.7	1065.5	.2440	1.5906	1.8347
169	5.854	11.92	63.42	.01577	136.88	1134.6	997.7	929.0	1065.8	.2456	1.5872	1.8328
170	5.990	12.20	62.07	0.01611	137.88	1135.0	997.1	928.3	1066.1	0.2472	1.5837	1.8309
171	6.13	12.48	60.75	.01646	138.88	1135.4	996.5	927.6	1066.5	.2488	1.5803	1.8291
172	6.27	12.77	59.46	.01682	139.88	1135.8	995.9	926.9	1066.8	.2504	1.5768	1.8272
173	6.42	13.06	58.20	.01718	140.88	1136.2	995.4	926.2	1067.1	.2520	1.5734	1.8254
174	6.56	13.36	56.98	.01755	141.88	1136.6	994.8	925.5	1067.4	.2536	1.5700	1.8236
175	6.71	13.67	55.78	0.01793	142.88	1137.1	994.2	924.9	1067.7	0.2552	1.5666	1.8218
176	6.87	13.98	54.62	.01831	143.89	1137.5	993.6	924.2	1068.0	.2567	1.5632	1.8199
177	7.02	14.30	53.48	.01870	144.89	1137.9	993.0	923.5	1068.3	.2583	1.5598	1.8181
178	7.18	14.62	52.37	.01909	145.89	1138.3	992.4	922.8	1068.6	.2599	1.5565	1.8163
179	7.34	14.95	51.29	.01950	146.89	1138.7	991.8	922.1	1069.0	.2614	1.5531	1.8145
180	7.51	15.29	50.24	0.01991	147.89	1139.1	991.2	921.4	1069.3	0.2630	1.5497	1.8127
181	7.68	15.63	49.21	.02032	148.89	1139.5	990.6	920.7	1069.6	.2646	1.5464	1.8110
182	7.85	15.98	48.20	.02075	149.89	1139.9	990.0	920.0	1069.9	.2661	1.5430	1.8092
183	8.02	16.34	47.22	.02118	150.90	1140.3	989.4	919.3	1070.2	.2677	1.5397	1.8074
184	8.20	16.70	46.26	.02162	151.90	1140.7	988.8	918.6	1070.5	.2693	1.5364	1.8057
185	8.38	17.07	45.33	0.02206	152.90	1141.1	988.2	917.9	1070.8	0.2708	1.5331	1.8039
186	8.57	17.44	44.41	.02252	153.90	1141.5	987.6	917.2	1071.1	.2724	1.5298	1.8022
187	8.76	17.82	43.52	.02298	154.91	1141.9	987.0	916.5	1071.4	.2739	1.5265	1.8004
188	8.95	18.21	42.65	.02345	155.91	1142.3	986.4	915.8	1071.7	.2755	1.5232	1.7987
189	9.14	18.61	41.80	.02392	156.91	1142.7	985.8	915.1	1072.0	.2770	1.5199	1.7969

Temp., °F.	Pressure		Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
	Lb. per sq. in.	In. of Mercury			of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	—	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
190	9.34	19.01	40.97	0.02441	157.91	1143.1	985.2	914.4	1072.3	0.2786	1.5167	1.7952
191	9.54	19.42	40.16	.02490	158.92	1143.5	984.6	913.7	1072.6	.2801	1.5134	1.7935
192	9.75	19.84	39.37	.02540	159.92	1143.9	984.0	913.0	1072.9	.2816	1.5102	1.7918
193	9.96	20.27	38.60	.02591	160.92	1144.3	983.4	912.3	1073.2	.2832	1.5069	1.7901
194	10.17	20.70	37.84	.02643	161.92	1144.7	982.8	911.6	1073.5	.2847	1.5037	1.7884
195	10.38	21.14	37.10	0.02696	162.93	1145.1	982.2	910.9	1073.8	0.2863	1.5005	1.7867
196	10.60	21.59	36.38	.02749	163.93	1145.5	981.6	910.2	1074.1	.2878	1.4973	1.7850
197	10.83	22.05	35.68	.02803	164.93	1145.9	981.0	909.5	1074.4	.2893	1.4941	1.7834
198	11.06	22.51	34.99	.02859	165.94	1146.3	980.4	908.8	1074.7	.2908	1.4909	1.7817
199	11.29	22.98	34.31	.02915	166.94	1146.7	979.8	908.1	1075.0	.2924	1.4877	1.7800
200	11.53	23.46	33.65	0.02972	167.95	1147.1	979.2	907.4	1075.3	0.2939	1.4845	1.7784
201	11.77	23.95	33.01	.03030	168.95	1147.5	978.6	906.7	1075.6	.2954	1.4813	1.7767
202	12.01	24.45	32.38	.03088	169.95	1147.9	977.9	906.0	1075.9	.2969	1.4782	1.7751
203	12.26	24.96	31.76	.03148	170.96	1148.3	977.3	905.3	1076.2	.2984	1.4750	1.7734
204	12.51	25.48	31.16	.03209	171.96	1148.7	976.7	904.5	1076.5	.3000	1.4718	1.7718
205	12.77	26.00	30.58	0.03271	172.97	1149.1	976.1	903.8	1076.8	0.3015	1.4687	1.7702
206	13.03	26.53	30.00	.03333	173.97	1149.4	975.5	903.1	1077.1	.3030	1.4656	1.7685
207	13.30	27.07	29.44	.03397	174.98	1149.8	974.8	902.4	1077.3	.3045	1.4624	1.7669
208	13.57	27.62	28.89	.03461	175.98	1150.2	974.2	901.7	1077.6	.3060	1.4593	1.7653
209	13.84	28.18	28.35	.03527	176.99	1150.6	973.6	901.0	1077.9	.3075	1.4562	1.7637
210	14.12	28.75	27.83	0.03594	177.99	1151.0	973.0	900.3	1078.2	0.3090	1.4531	1.7621
211	14.41	29.33	27.32	.03661	179.0	1151.4	972.4	899.6	1078.5	.3105	1.4500	1.7605
212	14.70	29.92	26.81	.03730	180.0	1151.7	971.7	898.8	1078.8	.3120	1.4469	1.7589
213	14.99	.....	26.32	.03800	181.0	1152.1	971.1	898.1	1079.1	.3135	1.4438	1.7573
214	15.29	.....	25.84	.03870	182.0	1152.5	970.5	897.4	1079.4	.3150	1.4408	1.7558
215	15.59	.....	25.37	0.03942	183.0	1152.9	969.9	896.7	1079.6	0.3165	1.4377	1.7542
216	15.90	.....	24.91	.04015	184.0	1153.3	969.3	896.0	1079.9	.3179	1.4347	1.7526
217	16.22	.....	24.46	.04089	185.0	1153.6	968.6	895.3	1080.2	.3194	1.4316	1.7510
218	16.54	.....	24.02	.04164	186.0	1154.0	968.0	894.5	1080.5	.3209	1.4286	1.7495
219	16.86	.....	23.58	.04241	187.0	1154.4	967.4	893.8	1080.8	.3224	1.4255	1.7479
220	17.19	.....	23.16	0.04318	188.0	1154.8	966.8	893.1	1081.1	0.3239	1.4225	1.7464
221	17.52	.....	22.75	.04396	189.0	1155.2	966.1	892.4	1081.3	.3254	1.4195	1.7449
222	17.86	.....	22.35	.04476	190.1	1155.5	965.5	891.7	1081.6	.3268	1.4165	1.7433
223	18.21	.....	21.95	.04557	191.1	1155.9	964.9	890.9	1081.9	.3283	1.4135	1.7418
224	18.56	.....	21.56	.04639	192.1	1156.3	964.2	890.2	1082.2	.3298	1.4105	1.7403
225	18.92	.....	21.18	0.04722	193.1	1156.6	963.6	889.5	1082.5	0.3313	1.4075	1.7388
226	19.28	.....	20.81	.04807	194.1	1157.0	962.9	888.7	1082.7	.3327	1.4045	1.7372
227	19.65	.....	20.44	.04892	195.1	1157.4	962.3	888.0	1083.0	.3342	1.4015	1.7357
228	20.02	.....	20.08	.04979	196.1	1157.7	961.6	887.3	1083.3	.3357	1.3986	1.7342
229	20.40	.....	19.73	.05067	197.1	1158.1	961.0	886.5	1083.6	.3371	1.3956	1.7327
230	20.78	.....	19.39	0.05156	198.1	1158.5	960.4	885.8	1083.8	0.3386	1.3926	1.7312
231	21.17	.....	19.06	.05247	199.1	1158.8	959.7	885.1	1084.1	.3400	1.3897	1.7297
232	21.57	.....	18.73	.05339	200.1	1159.2	959.1	884.4	1084.4	.3415	1.3868	1.7282
233	21.97	.....	18.41	.05432	201.1	1159.6	958.5	883.6	1084.7	.3429	1.3838	1.7268
234	22.38	.....	18.10	.05527	202.1	1159.9	957.8	882.9	1084.9	.3444	1.3809	1.7253
235	22.80	.....	17.79	0.0562	203.1	1160.3	957.2	882.1	1085.2	0.3458	1.3780	1.7238
236	23.22	.....	17.49	.0572	204.1	1160.6	956.5	881.4	1085.5	.3473	1.3751	1.7224
237	23.65	.....	17.19	.0582	205.2	1161.0	955.8	880.7	1085.7	.3488	1.3721	1.7209
238	24.09	.....	16.90	.0592	206.2	1161.4	955.2	879.9	1086.0	.3502	1.3692	1.7194
239	24.53	.....	16.61	.0602	207.2	1161.7	954.5	879.2	1086.3	.3516	1.3664	1.7180
240	24.97	.....	16.33	0.0612	208.2	1162.1	953.9	878.4	1086.5	0.3531	1.3635	1.7165
241	25.43	.....	16.06	.0623	209.2	1162.4	953.2	877.7	1086.8	.3545	1.3606	1.7151
242	25.89	.....	15.79	.0633	210.2	1162.8	952.6	876.9	1087.1	.3560	1.3577	1.7137
243	26.36	.....	15.53	.0644	211.2	1163.1	951.9	876.2	1087.3	.3574	1.3548	1.7122
244	26.83	.....	15.27	.0655	212.2	1163.5	951.3	875.5	1087.6	.3588	1.3520	1.7108

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v′	1/v′	i′	i″	r	ρ	u″	s′	r/T	s″
245	27.31	15.02	0.0666	213.2	1163.8	950.6	874.7	1087.8	0.3603	1.3491	1.7094
246	27.80	14.77	.0677	214.2	1164.2	949.9	874.0	1088.1	.3617	1.3463	1.7080
247	28.30	14.53	.0688	215.2	1164.5	949.3	873.2	1088.4	.3631	1.3434	1.7065
248	28.80	14.29	.0700	216.3	1164.9	948.6	872.5	1088.6	.3645	1.3406	1.7051
249	29.31	14.06	.0711	217.3	1165.2	947.9	871.7	1088.9	.3660	1.3377	1.7037
250	29.83	13.83	0.0723	218.3	1165.5	947.3	870.9	1089.1	0.3674	1.3349	1.7023
251	30.36	13.61	.0735	219.3	1165.9	946.6	870.2	1089.4	.3688	1.3321	1.7009
252	30.89	13.39	.0747	220.3	1166.2	945.9	869.4	1089.6	.3702	1.3293	1.6995
253	31.43	13.17	.0759	221.3	1166.6	945.3	868.7	1089.9	.3717	1.3265	1.6982
254	31.98	12.96	.0772	222.3	1166.9	944.6	867.9	1090.1	.3731	1.3237	1.6968
255	32.54	12.75	0.0784	223.4	1167.2	943.9	867.2	1090.4	0.3745	1.3209	1.6954
256	33.10	12.55	.0797	224.4	1167.6	943.2	866.4	1090.7	.3759	1.3181	1.6940
257	33.67	12.35	.0810	225.4	1167.9	942.5	865.7	1090.9	.3773	1.3153	1.6926
258	34.25	12.15	.0823	226.4	1168.3	941.9	864.9	1091.2	.3787	1.3125	1.6913
259	34.84	11.96	.0836	227.4	1168.6	941.2	864.1	1091.4	.3801	1.3098	1.6899
260	35.44	11.77	0.0849	228.4	1168.9	940.5	863.4	1091.7	0.3816	1.3070	1.6885
261	36.04	11.59	.0863	229.4	1169.2	939.8	862.6	1091.9	.3830	1.3042	1.6872
262	36.66	11.41	.0877	230.4	1169.6	939.2	861.8	1092.1	.3844	1.3015	1.6858
263	37.28	11.23	.0891	231.4	1169.9	938.5	861.1	1092.4	.3858	1.2987	1.6845
264	37.91	11.05	.0905	232.5	1170.2	937.8	860.3	1092.6	.3872	1.2960	1.6831
265	38.55	10.88	0.0919	233.5	1170.6	937.1	859.5	1092.9	0.3886	1.2932	1.6818
266	39.19	10.71	.0934	234.5	1170.9	936.4	858.8	1093.1	.3900	1.2905	1.6805
267	39.85	10.55	.0948	235.5	1171.2	935.7	858.0	1093.4	.3914	1.2878	1.6791
268	40.51	10.39	.0963	236.5	1171.5	935.0	857.2	1093.6	.3928	1.2850	1.6778
269	41.19	10.23	.0978	237.5	1171.9	934.3	856.5	1093.9	.3942	1.2823	1.6765
270	41.87	10.07	0.0993	238.6	1172.2	933.6	855.7	1094.1	0.3956	1.2796	1.6752
271	42.56	9.92	.1008	239.6	1172.5	932.9	854.9	1094.3	.3969	1.2769	1.6738
272	43.26	9.77	.1024	240.6	1172.8	932.2	854.1	1094.6	.3983	1.2742	1.6725
273	43.97	9.62	.1040	241.6	1173.1	931.5	853.3	1094.8	.3997	1.2715	1.6712
274	44.69	9.47	.1056	242.6	1173.5	930.8	852.6	1095.1	.4011	1.2688	1.6699
275	45.42	9.33	0.1072	243.7	1173.8	930.1	851.8	1095.3	0.4025	1.2661	1.6686
276	46.16	9.19	.1088	244.7	1174.1	929.4	851.0	1095.5	.4039	1.2634	1.6673
277	46.91	9.05	.1105	245.7	1174.4	928.7	850.2	1095.8	.4052	1.2608	1.6660
278	47.67	8.92	.1121	246.7	1174.7	928.0	849.4	1096.0	.4066	1.2581	1.6647
279	48.44	8.79	.1138	247.7	1175.0	927.3	848.7	1096.2	.4080	1.2554	1.6634
280	49.22	8.66	0.1155	248.8	1175.3	926.6	847.9	1096.5	0.4094	1.2528	1.6622
281	50.00	8.53	.1173	249.8	1175.6	925.8	847.1	1096.7	.4108	1.2501	1.6609
282	50.80	8.40	.1190	250.8	1175.9	925.1	846.3	1096.9	.4121	1.2475	1.6596
283	51.61	8.28	.1208	251.8	1176.2	924.4	845.5	1097.1	.4135	1.2448	1.6583
284	52.43	8.16	.1226	252.8	1176.5	923.7	844.7	1097.4	.4159	1.2422	1.6571
285	53.26	8.04	0.1244	253.9	1176.8	923.0	843.9	1097.6	0.4162	1.2396	1.6558
286	54.10	7.92	.1263	254.9	1177.1	922.3	843.1	1097.8	.4176	1.2369	1.6545
287	54.95	7.80	.1281	255.9	1177.4	921.5	842.3	1098.0	.4190	1.2343	1.6533
288	55.81	7.69	.1300	256.9	1177.7	920.8	841.5	1098.3	.4203	1.2317	1.6520
289	56.68	7.58	.1319	257.9	1178.0	920.1	840.7	1098.5	.4217	1.2291	1.6508
290	57.57	7.47	0.1339	259.0	1178.3	919.4	839.9	1098.7	0.4230	1.2265	1.6495
291	58.46	7.36	.1358	260.0	1178.6	918.6	839.1	1098.9	.4244	1.2238	1.6483
292	59.37	7.26	.1378	261.0	1178.9	917.9	838.3	1099.1	.4258	1.2212	1.6470
293	60.28	7.15	.1398	262.0	1179.2	917.2	837.5	1099.3	.4271	1.2186	1.6458
294	61.21	7.05	.1418	263.1	1179.5	916.4	836.7	1099.6	.4285	1.2160	1.6445
295	62.15	6.95	0.1439	264.1	1179.8	915.7	835.9	1099.8	0.4298	1.2135	1.6433
296	63.10	6.85	.1459	265.1	1180.1	915.0	835.1	1100.0	.4312	1.2109	1.6421
297	64.06	6.76	.1480	266.1	1180.3	914.2	834.3	1100.2	.4325	1.2083	1.6408
298	65.04	6.66	.1501	267.2	1180.6	913.5	833.5	1100.4	.4339	1.2057	1.6396
299	66.03	6.57	.1523	268.2	1180.9	912.7	832.6	1100.6	.4352	1.2032	1.6384

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
300	67.0	6.48	0.1544	269.2	1181.2	912.0	831.8	1100.8	0.4366	1.2006	1.6372
301	68.0	6.39	.1566	270.3	1181.5	911.2	831.0	1101.0	.4379	1.1980	1.6359
302	69.1	6.30	.1588	271.3	1181.8	910.5	830.2	1101.2	.4393	1.1955	1.6347
303	70.1	6.21	.1611	272.3	1182.0	909.7	829.4	1101.5	.4406	1.1929	1.6335
304	71.1	6.12	.1633	273.3	1182.3	909.0	828.6	1101.7	.4420	1.1904	1.6323
305	72.2	6.04	0.1656	274.4	1182.6	908.2	827.7	1101.9	0.4433	1.1878	1.6311
306	73.3	5.96	.1679	275.4	1182.8	907.4	826.9	1102.1	.4446	1.1853	1.6299
307	74.4	5.87	.1703	276.4	1183.1	906.7	826.1	1102.3	.4460	1.1827	1.6287
308	75.5	5.79	.1726	277.5	1183.4	905.9	825.3	1102.5	.4473	1.1802	1.6275
309	76.6	5.71	.1750	278.5	1183.7	905.2	824.4	1102.7	.4487	1.1777	1.6263
310	77.7	5.63	0.1775	279.5	1183.9	904.4	823.6	1102.8	0.4500	1.1751	1.6251
311	78.8	5.56	.1799	280.5	1184.2	903.6	822.8	1103.0	.4513	1.1726	1.6239
312	80.0	5.48	.1824	281.6	1184.4	902.9	821.9	1103.2	.4527	1.1701	1.6228
313	81.1	5.41	.1849	282.6	1184.7	902.1	821.1	1103.4	.4540	1.1676	1.6216
314	82.3	5.34	.1874	283.6	1184.9	901.3	820.3	1103.6	.4553	1.1651	1.6204
315	83.5	5.26	0.1899	284.7	1185.2	900.5	819.4	1103.8	0.4566	1.1626	1.6192
316	84.7	5.19	.1925	285.7	1185.5	899.8	818.6	1104.0	.4580	1.1601	1.6181
317	85.9	5.12	.1951	286.7	1185.7	899.0	817.8	1104.2	.4593	1.1576	1.6169
318	87.1	5.06	.1978	287.8	1186.0	898.2	816.9	1104.4	.4606	1.1551	1.6157
319	88.4	4.99	.2005	288.8	1186.2	897.4	816.1	1104.6	.4619	1.1526	1.6146
320	89.7	4.922	0.2032	289.8	1186.5	896.7	815.2	1104.7	0.4633	1.1501	1.6134
321	90.9	4.857	.2059	290.9	1186.7	895.9	814.4	1104.9	.4646	1.1477	1.6122
322	92.2	4.793	.2086	291.9	1187.0	895.1	813.5	1105.1	.4659	1.1452	1.6111
323	93.5	4.730	.2114	292.9	1187.2	894.3	812.7	1105.3	.4672	1.1427	1.6099
324	94.8	4.668	.2142	294.0	1187.5	893.5	811.8	1105.5	.4685	1.1402	1.6088
325	96.2	4.607	0.2171	295.0	1187.7	892.7	811.0	1105.7	0.4698	1.1378	1.6076
326	97.5	4.547	.2199	296.0	1187.9	891.9	810.1	1105.8	.4711	1.1353	1.6065
327	98.9	4.487	.2228	297.1	1188.2	891.1	809.3	1106.0	.4725	1.1329	1.6053
328	100.3	4.429	.2258	298.1	1188.4	890.3	808.4	1106.2	.4738	1.1304	1.6042
329	101.6	4.372	.2287	299.2	1188.6	889.5	807.6	1106.4	.4751	1.1280	1.6030
330	103.0	4.316	0.2317	300.2	1188.9	888.7	806.7	1106.5	0.4764	1.1255	1.6019
331	104.5	4.260	.2348	301.2	1189.1	887.9	805.9	1106.7	.4777	1.1231	1.6008
332	105.9	4.205	.2378	302.2	1189.3	887.1	805.0	1106.9	.4790	1.1206	1.5996
333	107.4	4.151	.2409	303.3	1189.6	886.3	804.1	1107.0	.4803	1.1182	1.5985
334	108.8	4.098	.2440	304.3	1189.8	885.5	803.3	1107.2	.4816	1.1158	1.5974
335	110.3	4.046	0.2472	305.4	1190.0	884.7	802.4	1107.4	0.4829	1.1133	1.5962
336	111.8	3.994	.2504	306.4	1190.2	883.8	801.5	1107.5	.4842	1.1109	1.5951
337	113.3	3.943	.2536	307.4	1190.4	883.0	800.7	1107.7	.4855	1.1085	1.5940
338	114.9	3.893	.2568	308.5	1190.7	882.2	799.8	1107.9	.4868	1.1061	1.5929
339	116.4	3.844	.2601	309.5	1190.9	881.4	798.9	1108.0	.4881	1.1037	1.5918
340	118.0	3.796	0.2635	310.5	1191.1	880.6	798.0	1108.2	0.4894	1.1012	1.5906
341	119.6	3.748	.2668	311.6	1191.3	879.7	797.2	1108.3	.4907	1.0988	1.5895
342	121.2	3.701	.2702	312.6	1191.5	878.9	796.3	1108.5	.4920	1.0964	1.5884
343	122.8	3.655	.2736	313.7	1191.7	878.1	795.4	1108.6	.4933	1.0940	1.5873
344	124.4	3.609	.2771	314.7	1191.9	877.2	794.5	1108.8	.4946	1.0916	1.5862
345	126.1	3.564	0.2806	315.8	1192.1	876.4	793.6	1109.0	0.4959	1.0892	1.5851
346	127.7	3.520	.2841	316.8	1192.3	875.6	792.7	1109.1	.4971	1.0868	1.5840
347	129.4	3.476	.2877	317.8	1192.5	874.7	791.9	1109.2	.4984	1.0845	1.5829
348	131.1	3.433	.2913	318.9	1192.7	873.9	791.0	1109.4	.4997	1.0821	1.5818
349	132.8	3.391	.2949	319.9	1192.9	873.0	790.1	1109.5	.5010	1.0797	1.5807
350	134.6	3.349	0.2986	321.0	1193.1	872.2	789.2	1109.7	0.5023	1.0773	1.5796
351	136.3	3.308	.3023	322.0	1193.3	871.3	788.3	1109.8	.5036	1.0749	1.5785
352	138.1	3.268	.3060	323.1	1193.5	870.5	787.4	1110.0	.5048	1.0726	1.5774
353	139.9	3.228	.3098	324.1	1193.7	869.6	786.5	1110.1	.5061	1.0702	1.5763
354	141.7	3.189	.3136	325.2	1193.9	868.8	785.6	1110.3	.5074	1.0678	1.5752

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
355	143.5	3.150	0.3175	326.2	1194.1	867.9	784.7	1110.4	0.5087	1.0654	1.5741
356	145.4	3.112	.3214	327.2	1194.3	867.1	783.8	1110.5	.5099	1.0631	1.5730
357	147.2	3.074	.3253	328.3	1194.5	866.2	782.9	1110.7	.5112	1.0607	1.5719
358	149.1	3.037	.3293	329.3	1194.7	865.3	782.0	1110.8	.5125	1.0584	1.5709
359	151.0	3.000	.3333	330.4	1194.9	864.5	781.1	1110.9	.5138	1.0560	1.5698
360	153.0	2.964	0.3373	331.4	1195.0	863.6	780.2	1111.1	0.5150	1.0537	1.5687
361	154.9	2.929	.3414	332.5	1195.2	862.7	779.3	1111.2	.5163	1.0513	1.5676
362	156.9	2.894	.3456	333.5	1195.4	861.9	778.3	1111.3	.5176	1.0490	1.5666
363	158.8	2.859	.3498	334.6	1195.6	861.0	777.4	1111.5	.5188	1.0467	1.5655
364	160.8	2.825	.3540	335.6	1195.7	860.1	776.5	1111.6	.5201	1.0443	1.5644
365	162.9	2.792	0.3582	336.7	1195.9	859.2	775.6	1111.7	0.5214	1.0420	1.5634
366	164.9	2.759	.3625	337.7	1196.1	858.3	774.7	1111.8	.5226	1.0397	1.5623
367	167.0	2.726	.3668	338.8	1196.2	857.4	773.8	1112.0	.5239	1.0373	1.5612
368	169.0	2.694	.3712	339.8	1196.4	856.6	772.8	1112.1	.5252	1.0350	1.5602
369	171.1	2.662	.3756	340.9	1196.6	855.7	771.9	1112.2	.5264	1.0327	1.5591
370	173.2	2.631	0.3801	342.0	1196.7	854.8	771.0	1112.3	0.5277	1.0303	1.5580
371	175.4	2.600	.3846	343.0	1196.9	853.9	770.0	1112.4	.5289	1.0280	1.5570
372	177.6	2.570	.3891	344.1	1197.0	853.0	769.1	1112.6	.5302	1.0257	1.5559
373	179.8	2.540	.3937	345.1	1197.2	852.1	768.2	1112.7	.5315	1.0234	1.5549
374	182.0	2.510	.3984	346.2	1197.3	851.2	767.2	1112.8	.5327	1.0211	1.5538
375	184.2	2.481	0.4031	347.2	1197.5	850.3	766.3	1112.9	0.5340	1.0188	1.5528
376	186.4	2.452	.4078	348.3	1197.6	849.4	765.4	1113.0	.5352	1.0165	1.5517
377	188.7	2.424	.4125	349.3	1197.8	848.5	764.4	1113.1	.5365	1.0142	1.5507
378	191.0	2.396	.4173	350.4	1197.9	847.5	763.5	1113.2	.5377	1.0119	1.5496
379	193.3	2.368	.4222	351.4	1198.1	846.6	762.5	1113.3	.5390	1.0096	1.5486
380	195.6	2.341	0.4271	352.5	1198.2	845.7	761.6	1113.4	0.5402	1.0073	1.5475
381	198.0	2.314	.4321	353.6	1198.3	844.8	760.6	1113.5	.5415	1.0050	1.5465
382	200.3	2.288	.4371	354.6	1198.5	843.9	759.7	1113.6	.5427	1.0027	1.5454
383	202.7	2.262	.4421	355.7	1198.6	842.9	758.7	1113.7	.5440	1.0004	1.5444
384	205.1	2.236	.4472	356.7	1198.7	842.0	757.8	1113.8	.5452	0.9981	1.5433
385	207.6	2.211	0.4523	357.8	1198.9	841.1	756.8	1113.9	0.5465	0.9958	1.5423
386	210.0	2.186	.4575	358.8	1199.0	840.2	755.9	1114.0	.5477	.9936	1.5413
387	212.5	2.161	.4627	359.9	1199.1	839.2	754.9	1114.1	.5489	.9913	1.5402
388	215.0	2.137	.4680	361.0	1199.2	838.3	753.9	1114.2	.5502	.9890	1.5392
389	217.6	2.113	.4733	362.0	1199.4	837.3	753.0	1114.2	.5514	.9867	1.5381
390	220.1	2.089	0.4787	363.1	1199.5	836.4	752.0	1114.3	0.5526	0.9845	1.5371
391	222.7	2.065	.4841	364.2	1199.6	835.4	751.0	1114.4	.5539	.9822	1.5361
392	225.3	2.042	.4896	365.2	1199.7	834.5	750.1	1114.5	.5551	.9799	1.5351
393	228.0	2.019	.4951	366.3	1199.8	833.5	749.1	1114.6	.5564	.9777	1.5340
394	230.6	1.987	.5007	367.3	1199.9	832.6	748.1	1114.7	.5576	.9754	1.5330
395	233.3	1.975	0.5063	368.4	1200.0	831.6	747.1	1114.7	0.5588	0.9732	1.5320
396	236.0	1.953	.5120	369.5	1200.1	830.7	746.2	1114.8	.5601	.9709	1.5310
397	238.7	1.931	.5178	370.5	1200.2	829.7	745.2	1114.9	.5613	.9686	1.5299
398	241.4	1.910	.5236	371.6	1200.3	828.7	744.2	1115.0	.5625	.9664	1.5289
399	244.2	1.889	.5294	372.7	1200.4	827.7	743.2	1115.0	.5638	.9641	1.5279
400	247.0	1.868	0.535	373.7	1200.5	826.8	742.2	1115.1	0.5650	0.9619	1.5269
405	261.3	1.768	.566	379.1	1201.0	821.9	737.3	1115.4	.5711	.9507	1.5218
410	276.3	1.675	.597	384.4	1201.4	817.0	732.3	1115.7	.5772	.9395	1.5167
415	292.0	1.587	.630	389.8	1201.7	812.0	727.2	1115.9	.5833	.9284	1.5117
420	308.3	1.504	.664	395.1	1202.0	806.9	722.1	1116.1	.5894	.9173	1.5067
425	325.4	1.427	0.701	400.5	1202.2	801.7	716.9	1116.3	0.5954	0.9063	1.5017
430	343.1	1.354	.739	405.9	1202.4	796.5	711.7	1116.4	.6014	.8953	1.4967
435	361.6	1.285	.778	411.4	1202.5	791.2	706.4	1116.5	.6074	.8844	1.4918
440	380.9	1.221	.819	416.8	1202.6	785.8	701.1	1116.5	.6134	.8735	1.4868
445	400.9	1.160	.862	422.2	1202.5	780.3	695.7	1116.5	.6193	.8626	1.4819

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy in B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
450	421.7	1.102	0.907	427.7	1202.5	774.8	690.2	1116.4	0.6252	0.8518	1.4770
455	443.4	1.048	0.954	433.2	1202.3	769.1	684.7	1116.2	.6311	.8410	1.4721
460	465.9	0.997	1.003	438.7	1202.1	763.4	679.1	1116.1	.6370	.8302	1.4672
465	489.2	.949	1.054	444.2	1201.8	757.6	673.5	1115.8	.6429	.8194	1.4623
470	513.5	.903	1.107	449.7	1201.5	751.8	667.8	1115.5	.6488	.8087	1.4575
475	538.7	0.860	1.162	455.2	1201.0	745.8	662.0	1115.2	0.6546	0.7980	1.4526
480	564.8	.820	1.220	460.8	1200.6	739.8	656.2	1114.8	.6604	.7873	1.4478
485	591.9	.781	1.280	466.4	1200.0	733.6	650.3	1114.4	.6662	.7767	1.4429
490	619.9	.744	1.343	472.0	1199.4	727.4	644.3	1113.9	.6720	.7660	1.4380
495	649.0	.710	1.409	477.6	1198.7	721.1	638.2	1113.4	.6778	.7554	1.4332
500	679	0.677	1.477	483.2	1197.9	714.7	632.1	1112.8	0.684	0.7448	1.4283
510	743	.616	1.62	494.6	1196.2	701.6	619.7	1111.4	.695	.724	1.419
520	810	.561	1.78	506.1	1194.1	688.0	606.9	1109.8	.707	.702	1.409
530	883	.512	1.95	517.7	1191.7	674.0	593.8	1108.0	.718	.681	1.399
540	960	.468	2.14	529.4	1189.0	659.7	580.4	1105.9	.729	.660	1.389
550	1043	0.427	2.34	541.2	1186.0	644.8	566.6	1103.6	0.741	0.639	1.379
560	1131	.390	2.56	553.2	1182.7	629.5	552.6	1101.0	.752	.617	1.369
570	1224	.357	2.80	565.5	1178.9	613.4	538.4	1098.0	.764	.596	1.360
580	1323	.326	3.07	578.2	1174.6	596.4	522.2	1094.8	.776	.574	1.350
590	1429	.298	3.36	591.1	1169.7	578.6	506.0	1091.0	.789	.551	1.340
600	1540	0.272	3.68	604.5	1164.2	559.7	488.9	1086.7	0.801	0.528	1.330
610	1659	.248	4.04	618	1158	540	471	1082	.....	.505	.....
620	1784	.226	4.43	633	1151	518	452	1077	.....	.480	.....
630	1917	.205	4.88	648	1143	495	431	1071	.....	.455	.....
640	2057	.186	5.38	664	1134	470	409	1064	.....	.428	.....
650	2205	0.168	5.95	681	1124	443	385	1056	.....	0.399	.....
660	2361	.151	6.6	700	1112	412	358	1047	.....	.368	.....
670	2526	.134	7.4	721	1098	377	327	1036	.....	.333	.....
680	2699	.118	8.5	745	1080	335	290	1021	.....	.294	.....
690	2882	.101	9.9	776	1056	280	243	1002	.....	.244	.....
700	3075	.080	12.5	820	1018	198	171	972	.....	.170	.....
706.3	3200	0.048	20.9	921	921	0	0	893	.....	0	.....

Pressure	1 [101.8]			2 [126.1]			3 [141.5]			4 [153.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	333.3	1.9775	1105.4	173.6	1.9203	1116.2	118.7	1.8871	1122.9	90.6	1.8637	1127.9
150	362.2	2.0160	1127.9	180.8	1.9390	1127.4	120.4	1.8937	1126.9	....	.....	.....
160	368.2	2.0236	1132.5	183.8	1.9466	1132.1	122.4	1.9013	1131.6	91.7	1.8691	1131.2
170	374.2	2.0310	1137.1	186.8	1.9540	1136.7	124.4	1.9088	1136.3	93.2	1.8766	1135.9
180	380.1	2.0382	1141.7	189.8	1.9613	1141.3	126.4	1.9161	1140.9	94.7	1.8840	1140.5
190	386.1	2.0454	1146.3	192.8	1.9685	1146.0	128.4	1.9233	1145.6	96.2	1.8912	1145.2
200	392.1	2.0524	1150.9	195.8	1.9756	1150.6	130.4	1.9304	1150.2	97.7	1.8984	1149.9
210	398.1	2.0593	1155.5	198.8	1.9825	1155.2	132.4	1.9374	1154.9	99.2	1.9054	1154.5
220	404.0	2.0661	1160.1	201.8	1.9894	1159.8	134.4	1.9443	1159.5	100.8	1.9123	1159.2
230	410.0	2.0728	1164.7	204.8	1.9961	1164.4	136.4	1.9511	1164.1	102.3	1.9190	1163.8
240	416.0	2.0794	1169.3	207.8	2.0027	1169.0	138.5	1.9577	1168.7	103.8	1.9257	1168.5
250	421.9	2.0859	1173.8	210.8	2.0092	1173.6	140.5	1.9643	1173.3	105.3	1.9323	1173.1
260	427.9	2.0923	1178.4	213.8	2.0156	1178.2	142.5	1.9707	1177.9	106.8	1.9387	1177.7
270	433.9	2.0986	1183.0	216.8	2.0220	1182.8	144.5	1.9770	1182.5	108.3	1.9451	1182.3
280	439.8	2.1048	1187.6	219.8	2.0282	1187.4	146.4	1.9833	1187.1	109.8	1.9514	1186.9
290	445.8	2.1110	1192.1	222.8	2.0343	1191.9	148.4	1.9895	1191.7	111.3	1.9576	1191.5
300	451.7	2.1170	1196.7	225.8	2.0404	1196.5	150.4	1.9956	1196.3	112.8	1.9637	1196.1
310	457.7	2.1230	1201.3	228.8	2.0464	1201.1	152.4	2.0016	1200.9	114.3	1.9697	1200.7
320	463.6	2.1289	1205.9	231.8	2.0523	1205.7	154.4	2.0075	1205.5	115.8	1.9756	1205.3
330	469.6	2.1348	1210.5	234.7	2.0582	1210.3	156.4	2.0133	1210.1	117.3	1.9814	1209.9
340	475.5	2.1406	1215.1	237.7	2.0640	1214.9	158.4	2.0191	1214.7	118.8	1.9872	1214.6
350	481.5	2.1463	1219.6	240.7	2.0697	1219.5	160.4	2.0249	1219.3	120.3	1.9930	1219.2
400	511.3	2.1738	1242.6	255.6	2.0973	1242.5	170.4	2.0526	1242.4	127.7	2.0207	1242.2
450	541.1	2.2000	1265.7	270.5	2.1235	1265.6	180.3	2.0788	1265.5	135.2	2.0470	1265.4
500	570.8	2.2248	1289.0	285.4	2.1484	1288.9	190.2	2.1036	1288.8	142.7	2.0719	1288.7
550	600.6	2.2486	1312.4	300.3	2.1722	1312.3	200.2	2.1274	1312.3	150.1	2.0957	1312.2

	5 [162.3]			6 [170.1]			7 [176.8]			8 [182.9]		
Sat.	73.5	1.8456	1131.7	62.0	1.8308	1135.0	53.7	1.8184	1137.8	47.4	1.8077	1140.3
180	75.7	1.8589	1140.1	63.0	1.8383	1139.7	53.9	1.8208	1139.3	....	.....	.....
190	76.9	1.8662	1144.8	64.0	1.8456	1144.5	54.8	1.8282	1144.1	47.9	1.8130	1143.7
200	78.1	1.8734	1149.5	65.0	1.8528	1149.2	55.7	1.8354	1148.8	48.7	1.8202	1148.4
210	79.3	1.8804	1154.2	66.0	1.8599	1153.9	56.6	1.8425	1153.5	49.4	1.8274	1153.2
220	80.5	1.8873	1158.9	67.0	1.8668	1158.5	57.4	1.8495	1158.2	50.2	1.8344	1157.9
230	81.7	1.8941	1163.5	68.1	1.8737	1163.2	58.3	1.8563	1162.9	51.0	1.8412	1162.6
240	83.0	1.9008	1168.2	69.1	1.8804	1167.9	59.2	1.8631	1167.6	51.7	1.8480	1167.3
250	84.2	1.9074	1172.8	70.1	1.8870	1172.5	60.0	1.8697	1172.3	52.5	1.8547	1172.0
260	85.4	1.9139	1177.4	71.1	1.8935	1177.2	60.9	1.8762	1176.9	53.3	1.8613	1176.7
270	86.6	1.9202	1182.1	72.1	1.8999	1181.8	61.8	1.8826	1181.6	54.0	1.8677	1181.3
280	87.8	1.9265	1186.7	73.1	1.9062	1186.5	62.6	1.8890	1186.2	54.8	1.8740	1186.0
290	89.0	1.9327	1191.3	74.1	1.9124	1191.1	63.5	1.8952	1190.9	55.5	1.8802	1190.7
300	90.2	1.9389	1195.9	75.1	1.9185	1195.7	64.4	1.9013	1195.5	56.3	1.8864	1195.3
310	91.4	1.9449	1200.5	76.1	1.9246	1200.3	65.2	1.9074	1200.1	57.0	1.8925	1199.9
320	92.6	1.9509	1205.2	77.1	1.9306	1205.0	66.1	1.9134	1204.8	57.8	1.8985	1204.6
330	93.8	1.9568	1209.8	78.1	1.9365	1209.6	66.9	1.9193	1209.4	58.6	1.9044	1209.2
340	95.0	1.9626	1214.4	79.1	1.9423	1214.2	67.8	1.9252	1214.1	59.3	1.9103	1213.9
350	96.2	1.9683	1219.0	80.1	1.9480	1218.9	68.7	1.9309	1218.7	60.1	1.9160	1218.5
400	102.2	1.9960	1242.1	85.1	1.9758	1242.0	72.9	1.9587	1241.9	63.8	1.9438	1241.7
450	108.2	2.0223	1265.3	90.1	2.0021	1265.2	77.2	1.9850	1265.1	67.6	1.9702	1265.0
500	114.1	2.0472	1288.7	95.1	2.0271	1288.6	81.5	2.0100	1288.5	71.3	1.9952	1288.4
550	120.1	2.0710	1312.2	100.0	2.0509	1312.1	85.8	2.0338	1312.0	75.0	2.0191	1312.0
600	126.0	2.0940	1335.8	105.0	2.0738	1335.8	90.0	2.0568	1335.7	78.8	2.0421	1335.7
650	132.0	2.1160	1359.7	110.0	2.0959	1359.7	94.2	2.0789	1359.6	82.5	2.0641	1359.6

v = volume, cu. ft. per lb. s = entropy i = heat content, B.t.u.

Pressure	9 [188.3]			10 [193.2]			11 [197.8]			12 [202.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	42.4	1.7982	1142.5	38.43	1.7897	1144.4	35.16	1.7821	1146.2	32.41	1.7751	1147.9
200	43.2	1.8068	1148.1	38.85	1.7947	1147.7	35.28	1.7838	1147.3	....	.....	.....
210	43.9	1.8140	1152.9	39.47	1.8019	1152.5	35.84	1.7910	1152.1	32.82	1.7810	1151.7
220	44.6	1.8210	1157.6	40.09	1.8090	1157.2	36.41	1.7981	1156.9	33.34	1.7881	1156.5
230	45.3	1.8279	1162.3	40.70	1.8159	1162.0	36.97	1.8051	1161.7	33.86	1.7951	1161.3
240	45.9	1.8347	1167.0	41.32	1.8227	1166.7	37.53	1.8119	1166.4	34.37	1.8019	1166.1
250	46.6	1.8414	1171.7	41.93	1.8294	1171.4	38.09	1.8186	1171.1	34.89	1.8087	1170.9
260	47.3	1.8480	1176.4	42.54	1.8360	1176.1	38.65	1.8252	1175.9	35.40	1.8154	1175.6
270	48.0	1.8544	1181.1	43.15	1.8425	1180.8	39.20	1.8317	1180.6	35.91	1.8219	1180.3
280	48.7	1.8608	1185.8	43.76	1.8489	1185.5	39.76	1.8381	1185.3	36.42	1.8283	1185.0
290	49.3	1.8670	1190.4	44.37	1.8552	1190.2	40.31	1.8444	1190.0	36.93	1.8346	1189.8
300	50.0	1.8732	1195.1	44.98	1.8614	1194.9	40.87	1.8506	1194.7	37.44	1.8408	1194.5
310	50.7	1.8793	1199.7	45.58	1.8675	1199.5	41.42	1.8567	1199.3	37.95	1.8469	1199.1
320	51.4	1.8853	1204.4	46.19	1.8735	1204.2	41.97	1.8628	1204.0	38.46	1.8530	1203.8
330	52.0	1.8912	1209.1	46.79	1.8794	1208.9	42.52	1.8688	1208.7	38.96	1.8590	1208.5
340	52.7	1.8971	1213.7	47.40	1.8853	1213.5	43.07	1.8747	1213.4	39.47	1.8649	1213.2
350	53.4	1.9029	1218.4	48.00	1.8911	1218.2	43.62	1.8805	1218.0	39.97	1.8707	1217.9
360	54.1	1.9086	1223.0	48.61	1.8968	1222.8	44.17	1.8862	1222.6	40.47	1.8764	1222.5
370	54.7	1.9142	1227.6	49.21	1.9025	1227.4	44.72	1.8919	1227.3	40.98	1.8821	1227.2
380	55.4	1.9198	1232.2	49.82	1.9081	1232.1	45.27	1.8975	1232.0	41.48	1.8877	1231.9
390	56.0	1.9253	1236.9	50.42	1.9136	1236.8	45.82	1.9030	1236.7	41.99	1.8932	1236.5
400	56.7	1.9308	1241.6	51.02	1.9190	1241.5	46.37	1.9084	1241.4	42.49	1.8987	1241.2
450	60.0	1.9571	1264.9	54.02	1.9454	1264.8	49.10	1.9348	1264.7	45.00	1.9251	1264.6
500	63.4	1.9822	1288.3	57.02	1.9705	1288.3	51.83	1.9599	1288.2	47.50	1.9503	1288.1
550	66.7	2.0061	1311.9	60.01	1.9944	1311.8	54.55	1.9839	1311.8	50.00	1.9742	1311.7
600	70.0	2.0290	1335.6	63.00	2.0174	1335.6	57.27	2.0069	1335.5	52.49	1.9972	1335.5

	13 [205.9]			14 [209.6]			15 [213.0]			16 [216.3]		
Sat.	30.07	1.7687	1149.4	28.06	1.7628	1150.8	26.30	1.7573	1152.2	24.76	1.7521	1153.4
210	30.27	1.7717	1151.4	28.07	1.7631	1151.0	....	.....	.....	....	.....	.....
220	30.74	1.7789	1156.2	28.52	1.7703	1155.9	26.59	1.7623	1155.5	24.91	1.7548	1155.2
230	31.22	1.7859	1161.0	28.97	1.7774	1160.7	27.01	1.7694	1160.4	25.30	1.7619	1160.1
240	31.70	1.7928	1165.8	29.41	1.7843	1165.5	27.43	1.7763	1165.2	25.69	1.7689	1164.9
250	32.18	1.7996	1170.6	29.86	1.7911	1170.3	27.84	1.7831	1170.0	26.08	1.7758	1169.7
260	32.65	1.8063	1175.3	30.30	1.7978	1175.1	28.26	1.7898	1174.8	26.47	1.7825	1174.5
270	33.13	1.8128	1180.1	30.74	1.8043	1179.8	28.67	1.7964	1179.6	26.86	1.7891	1179.3
280	33.60	1.8192	1184.8	31.18	1.8108	1184.6	29.08	1.8029	1184.3	27.25	1.7956	1184.1
290	34.07	1.8255	1189.5	31.62	1.8171	1189.3	29.49	1.8093	1189.1	27.64	1.8020	1188.8
300	34.54	1.8317	1194.2	32.06	1.8234	1194.0	29.90	1.8155	1193.8	28.02	1.8083	1193.6
310	35.01	1.8379	1198.9	32.50	1.8296	1198.7	30.31	1.8217	1198.5	28.41	1.8145	1198.3
320	35.48	1.8440	1203.6	32.93	1.8357	1203.4	30.72	1.8278	1203.2	28.79	1.8206	1203.0
330	35.95	1.8500	1208.3	33.37	1.8417	1208.1	31.13	1.8338	1208.0	29.17	1.8266	1207.8
340	36.42	1.8559	1213.0	33.80	1.8476	1212.8	31.54	1.8397	1212.7	29.55	1.8325	1212.5
350	36.89	1.8617	1217.7	34.24	1.8534	1217.5	31.94	1.8456	1217.4	29.93	1.8384	1217.2
360	37.35	1.8675	1222.4	34.67	1.8592	1222.2	32.35	1.8514	1222.1	30.31	1.8442	1221.9
370	37.82	1.8732	1227.1	35.10	1.8649	1226.9	32.75	1.8571	1226.8	30.69	1.8499	1226.6
380	38.28	1.8788	1231.8	35.54	1.8705	1231.6	33.16	1.8627	1231.5	31.07	1.8555	1231.3
390	38.75	1.8843	1236.4	35.97	1.8760	1236.3	33.56	1.8683	1236.2	31.45	1.8611	1236.0
400	39.21	1.8898	1241.1	36.40	1.8815	1241.0	33.96	1.8738	1240.9	31.83	1.8666	1240.7
450	41.53	1.9163	1264.5	38.55	1.9080	1264.4	35.97	1.9003	1264.3	33.72	1.8931	1264.2
500	43.84	1.9414	1288.0	40.70	1.9331	1287.9	37.98	1.9255	1287.9	35.60	1.9183	1287.8
550	46.15	1.9654	1311.6	42.84	1.9572	1311.6	39.98	1.9495	1311.5	37.48	1.9424	1311.5
600	48.45	1.9884	1335.4	44.98	1.9702	1335.4	41.98	1.9725	1335.3	39.35	1.9654	1335.3
650	50.75	2.0105	1359.4	47.12	2.0023	1359.3	43.97	1.9946	1359.3	41.22	1.9875	1359.2

Pressure	17 [219.4]			18 [222.4]			19 [225.2]			20 [228.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	23.40	1.7473	1154.6	22.18	1.7427	1155.7	21.09	1.7384	1156.7	20.10	1.7343	1157.7
230	23.79	1.7548	1159.7	22.45	1.7482	1159.4	21.25	1.7418	1159.1	20.17	1.7358	1158.7
240	24.16	1.7618	1164.6	22.80	1.7552	1164.3	21.58	1.7489	1164.0	20.49	1.7428	1163.6
250	24.53	1.7687	1169.4	23.15	1.7621	1169.1	21.91	1.7558	1168.8	20.80	1.7498	1168.5
260	24.90	1.7755	1174.2	23.50	1.7689	1174.0	22.24	1.7626	1173.7	21.12	1.7566	1173.4
270	25.26	1.7821	1179.0	23.85	1.7755	1178.8	22.57	1.7692	1178.5	21.43	1.7633	1178.3
280	25.63	1.7886	1183.8	24.19	1.7820	1183.6	22.90	1.7758	1183.3	21.74	1.7699	1183.1
290	25.99	1.7950	1188.6	24.54	1.7884	1188.4	23.23	1.7822	1188.1	22.06	1.7763	1187.9
300	26.36	1.8013	1193.4	24.88	1.7947	1193.1	23.56	1.7886	1192.9	22.37	1.7827	1192.7
310	26.72	1.8075	1198.1	25.22	1.8009	1197.9	23.88	1.7948	1197.7	22.68	1.7889	1197.5
320	27.08	1.8136	1202.8	25.56	1.8071	1202.6	24.21	1.8009	1202.4	22.99	1.7951	1202.2
330	27.44	1.8196	1207.6	25.91	1.8132	1207.4	24.53	1.8070	1207.2	23.29	1.8012	1207.0
340	27.80	1.8256	1212.3	26.25	1.8191	1212.1	24.85	1.8130	1212.0	23.60	1.8072	1211.8
350	28.16	1.8315	1217.0	26.59	1.8250	1216.9	25.18	1.8189	1216.7	23.91	1.8131	1216.5
360	28.52	1.8373	1221.8	26.93	1.8308	1221.6	25.50	1.8247	1221.4	24.22	1.8189	1221.3
370	28.88	1.8430	1226.5	27.27	1.8365	1226.3	25.82	1.8304	1226.2	24.52	1.8246	1226.0
380	29.24	1.8486	1231.2	27.60	1.8422	1231.0	26.14	1.8361	1230.9	24.83	1.8303	1230.7
390	29.59	1.8542	1235.9	27.94	1.8478	1235.7	26.46	1.8417	1235.6	25.13	1.8359	1235.5
400	29.95	1.8597	1240.6	28.28	1.8533	1240.4	26.78	1.8472	1240.3	25.44	1.8414	1240.2
450	31.73	1.8863	1264.1	29.96	1.8799	1264.0	28.38	1.8739	1263.9	26.96	1.8681	1263.8
500	33.50	1.9115	1287.7	31.64	1.9052	1287.6	29.97	1.8991	1287.5	28.47	1.8934	1287.4
550	35.27	1.9356	1311.4	33.31	1.9292	1311.3	31.55	1.9232	1311.2	29.97	1.9175	1311.1
600	37.04	1.9587	1335.2	34.98	1.9523	1335.1	33.13	1.9463	1335.1	31.47	1.9406	1335.0
650	38.80	1.9808	1359.2	36.64	1.9744	1359.1	34.71	1.9684	1359.1	32.97	1.9628	1359.1
700	40.56	2.0021	1383.4	38.30	1.9958	1383.4	36.28	1.9898	1383.3	34.47	1.9841	1383.3
750	42.31	2.0227	1407.8	39.96	2.0164	1407.8	37.85	2.0104	1407.7	35.96	2.0047	1407.7

	21 [230.6]			22 [233.1]			23 [235.5]			24 [237.8]		
Sat.	19.20	1.7304	1158.7	18.38	1.7267	1159.6	17.64	1.7231	1160.4	16.95	1.7197	1161.3
240	19.49	1.7371	1163.3	18.59	1.7316	1163.0	17.76	1.7264	1162.7	17.01	1.7213	1162.4
250	19.79	1.7441	1168.2	18.88	1.7386	1167.9	18.04	1.7334	1167.6	17.28	1.7283	1167.3
260	20.10	1.7509	1173.1	19.17	1.7455	1172.8	18.32	1.7403	1172.6	17.54	1.7352	1172.3
270	20.40	1.7576	1178.0	19.45	1.7522	1177.7	18.60	1.7470	1177.5	17.81	1.7420	1177.2
280	20.70	1.7642	1182.8	19.74	1.7588	1182.6	18.87	1.7536	1182.3	18.07	1.7486	1182.1
290	20.99	1.7707	1187.7	20.03	1.7653	1187.4	19.14	1.7601	1187.2	18.33	1.7551	1186.9
300	21.29	1.7771	1192.5	20.31	1.7717	1192.2	19.42	1.7665	1192.0	18.60	1.7615	1191.8
310	21.58	1.7833	1197.3	20.59	1.7780	1197.1	19.69	1.7729	1196.8	18.86	1.7679	1196.6
320	21.88	1.7895	1202.1	20.88	1.7842	1201.9	19.96	1.7791	1201.6	19.12	1.7741	1201.4
330	22.17	1.7956	1206.8	21.16	1.7903	1206.6	20.23	1.7852	1206.4	19.37	1.7803	1206.2
340	22.47	1.8016	1211.6	21.44	1.7963	1211.4	20.50	1.7912	1211.2	19.63	1.7863	1211.0
350	22.76	1.8075	1216.4	21.72	1.8022	1216.2	20.77	1.7971	1216.0	19.89	1.7922	1215.8
360	23.05	1.8133	1221.1	22.00	1.8080	1220.9	21.03	1.8030	1220.8	20.15	1.7981	1220.6
370	23.34	1.8191	1225.9	22.28	1.8138	1225.7	21.30	1.8087	1225.5	20.41	1.8039	1225.4
380	23.64	1.8248	1230.6	22.56	1.8195	1230.4	21.57	1.8144	1230.3	20.66	1.8096	1230.1
390	23.93	1.8304	1235.3	22.83	1.8251	1235.2	21.84	1.8200	1235.0	20.92	1.8153	1234.9
400	24.22	1.8359	1240.0	23.11	1.8307	1239.9	22.10	1.8256	1239.8	21.17	1.8208	1239.6
450	25.67	1.8626	1263.7	24.49	1.8574	1263.6	23.42	1.8524	1263.5	22.44	1.8476	1263.4
500	27.11	1.8880	1287.4	25.87	1.8828	1287.3	24.74	1.8778	1287.2	23.70	1.8730	1287.1
550	28.54	1.9121	1311.1	27.24	1.9069	1311.0	26.05	1.9019	1311.0	24.96	1.8972	1310.9
600	29.97	1.9352	1335.0	28.61	1.9300	1334.9	27.36	1.9251	1334.9	26.22	1.9204	1334.8
650	31.40	1.9573	1359.0	29.97	1.9522	1359.0	28.66	1.9473	1358.9	27.47	1.9425	1358.9
700	32.82	1.9787	1383.2	31.33	1.9735	1383.2	29.97	1.9686	1383.1	28.72	1.9639	1383.1
750	34.25	1.9993	1407.6	32.69	1.9942	1407.6	31.27	1.9893	1407.6	29.96	1.9845	1407.5
800	35.67	2.0193	1432.3	34.05	2.0142	1432.3	32.57	2.0092	1432.3	31.21	2.0045	1432.2

Pressure	25 [240.1]			26 [242.2]			27 [244.3]			28 [246.4]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	16.32	1.7164	1162.1	15.73	1.7133	1162.8	15.18	1.7103	1163.6	14.67	1.7074	1164.3
250	16.57	1.7235	1167.0	15.92	1.7188	1166.7	15.32	1.7143	1166.4	14.76	1.7099	1166.1
260	16.83	1.7304	1172.0	16.17	1.7258	1171.7	15.56	1.7213	1171.4	14.99	1.7169	1171.1
270	17.08	1.7372	1176.9	16.41	1.7326	1176.6	15.80	1.7281	1176.4	15.22	1.7238	1176.1
280	17.34	1.7439	1181.8	16.66	1.7393	1181.6	16.03	1.7348	1181.3	15.45	1.7305	1181.0
290	17.59	1.7504	1186.7	16.90	1.7458	1186.5	16.27	1.7414	1186.2	15.68	1.7371	1186.0
300	17.84	1.7568	1191.6	17.15	1.7523	1191.3	16.50	1.7479	1191.1	15.90	1.7436	1190.9
310	18.09	1.7632	1196.4	17.39	1.7587	1196.2	16.74	1.7543	1196.0	16.13	1.7500	1195.7
320	18.34	1.7694	1201.2	17.63	1.7649	1201.0	16.97	1.7605	1200.8	16.35	1.7563	1200.6
330	18.59	1.7756	1206.1	17.87	1.7711	1205.9	17.20	1.7667	1205.7	16.58	1.7625	1205.5
340	18.84	1.7816	1210.9	18.11	1.7771	1210.7	17.43	1.7728	1210.5	16.80	1.7686	1210.3
350	19.09	1.7876	1215.7	18.35	1.7831	1215.5	17.66	1.7787	1215.3	17.02	1.7746	1215.1
360	19.34	1.7935	1220.4	18.58	1.7890	1220.3	17.89	1.7846	1220.1	17.24	1.7805	1219.9
370	19.58	1.7993	1225.2	18.82	1.7948	1225.0	18.12	1.7905	1224.9	17.46	1.7863	1224.7
380	19.83	1.8050	1230.0	19.06	1.8005	1229.8	18.35	1.7962	1229.7	17.69	1.7920	1229.5
390	20.08	1.8106	1234.7	19.30	1.8061	1234.6	18.58	1.8018	1234.4	17.91	1.7977	1234.3
400	20.32	1.8162	1239.5	19.53	1.8117	1239.3	18.80	1.8074	1239.2	18,13	1.8033	1239.1
410	20.56	1.8217	1244.3	19.77	1.8172	1244.1	19.03	1.8129	1244.0	18.35	1.8088	1243.9
420	20.81	1.8271	1249.0	20.00	1.8227	1248.9	19.25	1.8184	1248.7	18.57	1.8143	1248.6
430	21.06	1.8325	1253.7	20.24	1.8281	1253.6	19.48	1.8238	1253.5	18.78	1.8197	1253.4
440	21.30	1.8378	1258.5	20.47	1.8334	1258.4	19.71	1.8291	1258.3	19.00	1.8250	1258.1
450	21.54	1.8430	1263.2	20.71	1.8386	1263.1	19.94	1.8344	1263.0	19.22	1.8303	1262.9
500	22.75	1.8684	1287.0	21.88	1.8640	1286.9	21.06	1.8598	1286.8	20.31	1.8557	1286.7
550	23.96	1.8926	1310.8	23.04	1.8882	1310.8	22.18	1.8840	1310.7	21.39	1.8800	1310.6
600	25.17	1.9158	1334.7	24.20	1.9114	1334.7	23.30	1.9072	1334.6	22.47	1.9032	1334.6
650	26.37	1.9380	1358.8	25.35	1.9336	1358.8	24.41	1.9294	1358.7	23.54	1.9254	1358.7

	29 [248.4]			30 [250.3]			31 [252.2]			32 [254.0]		
Sat.	14.20	1.7046	1165.0	13.76	1.7019	1165.7	13.34	1.6992	1166.3	12.95	1.6967	1166.9
260	14.46	1.7128	1170.8	13.97	1.7088	1170.5	13.50	1.7049	1170.3	13.07	1.7011	1170.0
270	14.68	1.7196	1175.8	14.18	1.7156	1175.5	13.71	1.7117	1175.3	13.28	1.7079	1175.0
280	14.90	1.7264	1180.8	14.40	1.7224	1180.5	13.92	1.7185	1180.3	13.48	1.7147	1180.0
290	15.13	1.7330	1185.7	14.61	1.7290	1185.5	14.13	1.7251	1185.3	13.68	1.7214	1185.0
300	15.35	1.7395	1190.6	14.82	1.7355	1190.4	14.34	1.7317	1190.2	13.88	1.7280	1189.9
310	15.56	1.7459	1195.5	15.04	1.7420	1195.3	14.54	1.7381	1195.1	14.08	1.7344	1194.9
320	15.78	1.7522	1200.4	15.25	1.7483	1200.2	14.75	1.7444	1200.0	14.28	1.7407	1199.8
330	16.00	1.7584	1205.3	15.46	1.7545	1205.1	14.95	1.7506	1204.9	14.48	1.7469	1204.7
340	16.21	1.7645	1210.1	15.67	1.7606	1209.9	15.15	1.7568	1209.7	14.67	1.7531	1209.5
350	16.43	1.7705	1214.9	15.87	1.7666	1214.8	15.35	1.7628	1214.6	14.87	1.7591	1214.4
360	16.64	1.7764	1219.7	16.08	1.7725	1219.6	15.56	1.7687	1219.4	15.06	1.7650	1219.2
370	16.86	1.7823	1224.6	16.29	1.7784	1224.4	15.76	1.7746	1224.2	15.26	1.7709	1224.1
380	17.07	1.7880	1229.4	16.50	1.7841	1229.2	15.96	1.7804	1229.0	15.45	1.7767	1228.9
390	17.28	1.7937	1234.1	16.70	1.7898	1234.0	16.16	1.7861	1233.8	15.65	1.7824	1233.7
400	17.50	1.7993	1238.9	16.91	1.7954	1238.8	16.36	1.7917	1238.6	15.84	1.7881	1238.5
410	17.71	1.8048	1243.7	17.11	1.8010	1243.6	16.55	1.7972	1243.4	16.03	1.7936	1243.3
420	17.92	1.8103	1248.5	17.32	1.8064	1248.4	16.75	1.8027	1248.2	16.23	1.7991	1248.1
430	18.13	1.8157	1253.3	17.52	1.8118	1253.1	16.95	1.8081	1253.0	16.42	1.8045	1252.9
440	18.34	1.8210	1258.0	17.73	1.8172	1257.9	17.15	1.8134	1257.8	16.61	1.8098	1257.7
450	18.55	1.8263	1262.8	17.93	1.8225	1262.7	17.35	1.8187	1262.6	16.80	1.8151	1262.5
500	19.60	1.8518	1286.6	18.95	1.8480	1286.5	18.33	1.8443	1286.5	17.76	1.8407	1286.4
550	20.65	1.8760	1310.5	19.96	1.8722	1310.4	19.31	1.8686	1310.4	18.71	1.8650	1310.3
600	21.69	1.8992	1334.5	20.96	1.8955	1334.4	20.29	1.8918	1334.4	19.65	1.8883	1334.3
650	22.72	1.9215	1358.6	21.97	1.9177	1358.6	21.27	1.9141	1358.5	20.59	1.9105	1358.5
700	23.76	1.9429	1382.9	22.97	1.9391	1382.9	22.24	1.9355	1382.8	21.53	1.9320	1382.8

Pressure	33 [255.8]			34 [257.6]			35 [259.3]			36 [260.9]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	12.59	1.6942	1167.5	12.24	1.6918	1168.1	11.91	1.6895	1168.7	11.60	1.6873	1169.2
260	12.67	1.6974	1169.7	12.29	1.6938	1169.4	11.92	1.6903	1169.1	....	.....	.....
270	12.87	1.7042	1174.7	12.48	1.7006	1174.4	12.11	1.6971	1174.2	11.77	1.6937	1173.9
280	13.06	1.7110	1179.7	12.67	1.7074	1179.5	12.30	1.7039	1179.2	11.95	1.7006	1178.9
290	13.26	1.7177	1184.7	12.86	1.7141	1184.5	12.48	1.7107	1184.2	12.13	1.7073	1184.0
300	13.45	1.7243	1189.7	13.05	1.7207	1189.5	12.67	1.7173	1189.2	12.31	1.7140	1189.0
310	13.65	1.7308	1194.6	13.24	1.7272	1194.4	12.85	1.7238	1194.2	12.49	1.7205	1193.9
320	13.84	1.7371	1199.5	13.42	1.7336	1199.3	13.03	1.7302	1199.1	12.66	1.7269	1198.9
330	14.03	1.7434	1204.4	13.61	1.7399	1204.2	13.22	1.7365	1204.0	12.84	1.7331	1203.8
340	14.22	1.7495	1209.3	13.80	1.7460	1209.1	13.40	1.7426	1208.9	13.02	1.7393	1208.7
350	14.41	1.7556	1214.2	13.98	1.7521	1214.0	13.58	1.7487	1213.8	13.19	1.7454	1213.6
360	14.60	1.7615	1219.0	14.17	1.7581	1218.9	13.76	1.7547	1218.7	13.37	1.7514	1218.5
370	14.79	1.7674	1223.9	14.35	1.7639	1223.7	13.94	1.7606	1223.6	13.54	1.7573	1223.4
380	14.98	1.7732	1228.7	14.53	1.7697	1228.6	14.12	1.7664	1228.4	13.72	1.7631	1228.3
390	15.17	1.7789	1233.5	14.72	1.7754	1233.4	14.29	1.7722	1233.2	13.89	1.7689	1233.1
400	15.36	1.7845	1238.3	14.90	1.7811	1238.2	14.47	1.7778	1238.1	14.06	1.7745	1238.0
410	15.54	1.7901	1243.2	15.08	1.7867	1243.0	14.65	1.7834	1242.9	14.24	1.7801	1242.8
420	15.73	1.7956	1248.0	15.26	1.7922	1247.8	14.82	1.7889	1247.7	14.41	1.7856	1247.6
430	15.92	1.8010	1252.8	15.45	1.7976	1252.6	15.00	1.7943	1252.5	14.58	1.7911	1252.4
440	16.10	1.8064	1257.6	15.63	1.8030	1257.4	15.18	1.7997	1257.3	14.75	1.7965	1257.2
450	16.29	1.8117	1262.3	15.81	1.8083	1262.2	15.35	1.8050	1262.1	14.92	1.8018	1262.0
500	17.22	1.8373	1286.3	16.71	1.8339	1286.2	16.23	1.8306	1286.1	15.77	1.8274	1286.0
550	18.14	1.8616	1310.2	17.60	1.8582	1310.2	17.10	1.8550	1310.1	16.62	1.8518	1310.0
600	19.05	1.8848	1334.3	18.49	1.8815	1334.2	17.96	1.8783	1334.1	17.46	1.8751	1334.1
650	19.97	1.9071	1358.4	19.38	1.9038	1358.4	18.82	1.9006	1358.3	18.30	1.8974	1358.3
700	20.88	1.9286	1382.7	20.26	1.9252	1382.7	19.68	1.9221	1382.7	19.13	1.9189	1382.6

	37 [262.6]			38 [264.2]			39 [265.7]			40 [267.2]		
Sat.	11.31	1.6851	1169.8	11.03	1.6830	1170.3	10.76	1.6809	1170.8	10.51	1.6788	1171.3
270	11.44	1.6903	1173.6	11.13	1.6871	1173.3	10.84	1.6839	1173.0	10.56	1.6808	1172.7
280	11.62	1.6972	1178.7	11.30	1.6940	1178.4	11.01	1.6909	1178.1	10.72	1.6878	1177.8
290	11.79	1.7040	1183.7	11.47	1.7008	1183.5	11.17	1.6977	1183.2	10.89	1.6946	1182.9
300	11.97	1.7107	1188.7	11.65	1.7075	1188.5	11.34	1.7044	1188.2	11.05	1.7013	1188.0
310	12.14	1.7172	1193.7	11.82	1.7140	1193.5	11.51	1.7109	1193.2	11.21	1.7079	1193.0
320	12.31	1.7236	1198.7	11.98	1.7204	1198.5	11.67	1.7173	1198.2	11.37	1.7143	1198.0
330	12.49	1.7299	1203.6	12.15	1.7267	1203.4	11.83	1.7236	1203.2	11.53	1.7207	1203.0
340	12.66	1.7361	1208.6	12.32	1.7330	1208.4	12.00	1.7299	1208.2	11.69	1.7269	1208.0
350	12.83	1.7422	1213.5	12.49	1.7391	1213.3	12.16	1.7360	1213.1	11.85	1.7331	1212.9
360	13.00	1.7482	1218.3	12.65	1.7451	1218.2	12.33	1.7421	1218.0	12.01	1.7391	1217.8
370	13.17	1.7541	1223.2	12.82	1.7510	1223.0	12.49	1.7480	1222.9	12.17	1.7450	1222.7
380	13.34	1.7600	1228.1	12.99	1.7569	1227.9	12.65	1.7539	1227.8	12.33	1.7509	1227.6
390	13.51	1.7657	1232.9	13.15	1.7626	1232.8	12.81	1.7596	1232.6	12.48	1.7567	1232.5
400	13.68	1.7714	1237.8	13.31	1.7683	1237.6	12.97	1.7653	1237.5	12.64	1.7624	1237.3
410	13.85	1.7770	1242.6	13.48	1.7739	1242.5	13.13	1.7709	1242.3	12.80	1.7680	1242.2
420	14.01	1.7825	1247.4	13.64	1.7794	1247.3	13.29	1.7764	1247.2	12.96	1.7735	1247.0
430	14.18	1.7879	1252.3	13.81	1.7849	1252.1	13.45	1.7819	1252.0	13.12	1.7790	1251.9
440	14.35	1.7933	1257.1	13.97	1.7903	1256.9	13.61	1.7873	1256.8	13.27	1.7844	1256.7
450	14.52	1.7986	1261.9	14.13	1.7956	1261.8	13.76	1.7926	1261.7	13.42	1.7897	1261.5
500	15.34	1.8243	1285.9	14.94	1.8213	1285.8	14.55	1.8184	1285.7	14.19	1.8155	1285.6
550	16.17	1.8487	1309.9	15.74	1.8457	1309.9	15.33	1.8428	1309.8	14.95	1.8399	1309.7
600	16.99	1.8720	1334.0	16.54	1.8690	1334.0	16.11	1.8661	1333.9	15.71	1.8633	1333.8
650	17.80	1.8944	1358.2	17.34	1.8914	1358.2	16.89	1.8885	1358.1	16.46	1.8856	1358.1
700	18.62	1.9158	1382.6	18.13	1.9129	1382.5	17.66	1.9100	1382.5	17.22	1.9071	1382.4
750	19.43	1.9365	1407.1	18.92	1.9336	1307.1	18.43	1.9307	1307.0	17.97	1.9279	1307.0

Pressure	41 [268.7]			42 [270.2]			43 [271.6]			44 [273.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	10.27	1.6768	1171.8	10.04	1.6749	1172.2	9.82	1.6730	1172.7	9.61	1.6712	1173.2
280	10.45	1.6848	1177.6	10.20	1.6818	1177.3	9.95	1.6789	1177.0	9.72	1.6761	1176.8
290	10.61	1.6916	1182.7	10.35	1.6887	1182.4	10.11	1.6858	1182.2	9.87	1.6830	1181.9
300	10.77	1.6983	1187.8	10.51	1.6954	1187.5	10.26	1.6926	1187.3	10.02	1.6898	1187.0
310	10.93	1.7049	1192.8	10.67	1.7020	1192.6	10.41	1.6992	1192.3	10.17	1.6964	1192.1
320	11.09	1.7114	1197.8	10.82	1.7085	1197.6	10.56	1.7057	1197.4	10.32	1.7029	1197.1
330	11.25	1.7178	1202.8	10.97	1.7149	1202.6	10.71	1.7121	1202.4	10.46	1.7093	1202.2
340	11.40	1.7240	1207.8	11.13	1.7212	1207.6	10.86	1.7184	1207.4	10.61	1.7156	1207.2
350	11.56	1.7301	1212.7	11.28	1.7273	1212.5	11.01	1.7245	1212.3	10.76	1.7218	1212.1
360	11.71	1.7362	1217.6	11.43	1.7334	1217.4	11.16	1.7306	1217.3	10.90	1.7279	1217.1
370	11.87	1.7421	1222.5	11.58	1.7393	1222.4	11.31	1.7366	1222.2	11.05	1.7339	1222.0
380	12.02	1.7480	1227.4	11.73	1.7452	1227.3	11.45	1.7425	1227.1	11.19	1.7398	1226.9
390	12.18	1.7538	1232.3	11.88	1.7510	1232.2	11.60	1.7483	1232.0	11.33	1.7456	1231.9
400	12.33	1.7595	1237.2	12.03	1.7567	1237.1	11.75	1.7540	1236.9	11.48	1.7513	1236.8
410	12.48	1.7651	1242.1	12.18	1.7623	1241.9	11.89	1.7596	1241.8	11.62	1.7569	1241.6
420	12.63	1.7707	1246.9	12.33	1.7679	1246.8	12.04	1.7652	1246.6	11.76	1.7625	1246.5
430	12.78	1.7762	1251.7	12.48	1.7734	1251.6	12.18	1.7707	1251.5	11.90	1.7680	1251.4
440	12.94	1.7816	1256.6	12.62	1.7788	1256.5	12.33	1.7761	1256.3	12.05	1.7734	1256.2
450	13.09	1.7869	1261.4	12.77	1.7841	1261.3	12.47	1.7814	1261.2	12.19	1.7788	1261.1
500	13.84	1.8127	1285.5	13.50	1.8100	1285.4	13.19	1.8073	1285.3	12.89	1.8047	1285.2
550	14.58	1.8371	1309.6	14.23	1.8344	1309.5	13.90	1.8318	1309.4	13.58	1.8292	1309.4
600	15.32	1.8605	1333.8	14.96	1.8578	1333.7	14.61	1.8552	1333.6	14.27	1.8526	1333.6
650	16.06	1.8829	1358.0	15.68	1.8802	1358.0	15.31	1.8776	1357.9	14.96	1.8750	1357.9
700	16.80	1.9044	1382.4	16.39	1.9017	1382.4	16.01	1.8991	1382.3	15.65	1.8965	1382.3
750	17.53	1.9251	1407.0	17.11	1.9224	1406.9	16.71	1.9198	1406.9	16.33	1.9173	1406.9
800	18.26	1.9452	1431.7	17.82	1.9425	1431.7	17.41	1.9399	1431.7	17.01	1.9373	1431.7

	45 [274.4]			46 [275.8]			47 [277.1]			48 [278.4]		
Sat.	9.41	1.6694	1173.6	9.22	1.6676	1174.0	9.04	1.6659	1174.4	8.86	1.6642	1174.8
280	9.49	1.6733	1176.5	9.28	1.6706	1176.2	9.08	1.6679	1175.9	8.90	1.6653	1175.7
290	9.64	1.6802	1181.7	9.43	1.6775	1181.4	9.22	1.6749	1181.1	9.03	1.6723	1180.9
300	9.79	1.6870	1186.8	9.57	1.6843	1186.5	9.36	1.6817	1186.3	9.16	1.6791	1186.0
310	9.94	1.6937	1191.9	9.71	1.6910	1191.6	9.50	1.6884	1191.4	9.30	1.6858	1191.1
320	10.08	1.7002	1196.9	9.86	1.6976	1196.7	9.64	1.6949	1196.5	9.43	1.6924	1196.2
330	10.23	1.7066	1202.0	10.00	1.7040	1201.8	9.78	1.7014	1201.5	9.57	1.6989	1201.3
340	10.37	1.7129	1207.0	10.14	1.7103	1206.8	9.92	1.7077	1206.6	9.71	1.7052	1206.4
350	10.51	1.7191	1211.9	10.28	1.7165	1211.8	10.06	1.7139	1211.6	9.84	1.7114	1211.4
360	10.66	1.7252	1216.9	10.42	1.7226	1216.7	10.19	1.7201	1216.5	9.98	1.7176	1216.4
370	10.80	1.7312	1221.8	10.56	1.7286	1221.7	10.33	1.7261	1221.5	10.11	1.7236	1221.3
380	10.94	1.7371	1226.8	10.70	1.7345	1226.6	10.46	1.7320	1226.4	10.24	1.7295	1226.3
390	11.08	1.7429	1231.7	10.83	1.7404	1231.5	10.60	1.7379	1231.4	10.37	1.7354	1231.2
400	11.22	1.7487	1236.6	10.97	1.7471	1236.5	10.73	1.7436	1236.3	10.51	1.7411	1236.2
410	11.36	1.7543	1241.5	11.11	1.7518	1241.4	10.87	1.7493	1241.2	10.64	1.7468	1241.1
420	11.50	1.7599	1246.4	11.24	1.7574	1246.2	11.00	1.7549	1246.1	10.77	1.7524	1246.0
430	11.64	1.7654	1251.2	11.38	1.7629	1251.1	11.13	1.7604	1251.0	10.90	1.7579	1250.8
440	11.77	1.7708	1256.1	11.52	1.7683	1256.0	11.27	1.7658	1255.8	11.03	1.7634	1255.7
450	11.91	1.7762	1261.0	11.65	1.7737	1260.8	11.40	1.7712	1260.7	11.16	1.7688	1260.6
500	12.60	1.8021	1285.1	12.32	1.7996	1285.0	12.06	1.7971	1285.0	11.80	1.7947	1284.9
550	13.28	1.8266	1309.3	12.99	1.8241	1309.2	12.71	1.8217	1309.2	12.44	1.8193	1309.1
600	13.95	1.8500	1333.5	13.65	1.8476	1333.5	13.36	1.8452	1333.4	13.08	1.8428	1333.3
650	14.63	1.8725	1357.8	14.31	1.8700	1357.8	14.00	1.8676	1357.7	13.71	1.8652	1357.6
700	15.30	1.8940	1382.2	14.97	1.8915	1382.2	14.65	1.8891	1382.2	14.34	1.8868	1382.1
750	15.97	1.9148	1406.8	15.62	1.9123	1406.8	15.29	1.9099	1406.8	14.97	1.9076	1406.7
800	16.63	1.9348	1431.6	16.27	1.9324	1431.6	15.93	1.9300	1431.6	15.59	1.9277	1431.5

Pressure	49 [279.7]			50 [281.0]			51 [282.3]			52 [283.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	8.69	1.6625	1175.2	8.53	1.6609	1175.6	8.37	1.6593	1176.0	8.22	1.6577	1176.4
290	8.83	1.6697	1180.6	8.65	1.6672	1180.3	8.47	1.6647	1180.1	8.31	1.6623	1179.8
300	8.97	1.6766	1185.8	8.78	1.6741	1185.5	8.60	1.6716	1185.3	8.43	1.6692	1185.0
310	9.10	1.6833	1190.9	8.91	1.6808	1190.7	8.73	1.6784	1190.4	8.56	1.6760	1190.2
320	9.24	1.6899	1196.0	9.05	1.6874	1195.8	8.86	1.6850	1195.6	8.69	1.6826	1195.4
330	9.37	1.6964	1201.1	9.18	1.6939	1200.9	8.99	1.6915	1200.7	8.82	1.6891	1200.5
340	9.50	1.7027	1206.2	9.31	1.7003	1206.0	9.12	1.6979	1205.8	8.94	1.6956	1205.6
350	9.64	1.7090	1211.2	9.44	1.7066	1211.0	9.25	1.7042	1210.8	9.07	1.7018	1210.6
360	9.77	1.7151	1216.2	9.57	1.7127	1216.0	9.38	1.7103	1215.8	9.19	1.7080	1215.6
370	9.90	1.7212	1221.1	9.70	1.7188	1221.0	9.50	1.7164	1220.8	9.32	1.7141	1220.6
380	10.03	1.7271	1226.1	9.82	1.7247	1225.9	9.63	1.7224	1225.8	9.44	1.7201	1225.6
390	10.16	1.7330	1231.1	9.95	1.7306	1230.9	9.75	1.7283	1230.7	9.56	1.7260	1230.6
400	10.29	1.7387	1236.0	10.08	1.7364	1235.9	9.88	1.7340	1235.7	9.68	1.7317	1235.6
410	10.42	1.7444	1240.9	10.20	1.7421	1240.8	10.00	1.7397	1240.6	9.81	1.7374	1240.5
420	10.55	1.7500	1245.8	10.33	1.7477	1245.7	10.13	1.7454	1245.6	9.93	1.7431	1245.4
430	10.67	1.7555	1250.7	10.46	1.7532	1250.6	10.25	1.7509	1250.5	10.05	1.7486	1250.3
440	10.80	1.7610	1255.6	10.58	1.7587	1255.5	10.37	1.7564	1255.3	10.17	1.7541	1255.2
450	10.93	1.7664	1260.5	10.71	1.7641	1260.4	10.50	1.7618	1260.2	10.29	1.7595	1260.1
460	11.06	1.7717	1265.3	10.83	1.7694	1265.2	10.62	1.7671	1265.1	10.41	1.7649	1265.0
470	11.18	1.7770	1270.2	10.96	1.7747	1270.1	10.74	1.7724	1270.0	10.53	1.7702	1269.9
480	11.31	1.7822	1275.0	11.08	1.7799	1274.9	10.86	1.7776	1274.9	10.65	1.7754	1274.8
490	11.44	1.7873	1279.9	11.20	1.7850	1279.8	10.98	1.7827	1279.7	10.77	1.7805	1279.6
500	11.56	1.7924	1284.8	11.33	1.7901	1284.7	11.10	1.7878	1284.6	10.89	1.7856	1284.5
550	12.19	1.8170	1309.0	11.94	1.8147	1308.9	11.71	1.8125	1308.9	11.48	1.8103	1308.8
600	12.81	1.8405	1333.3	12.55	1.8382	1333.2	12.31	1.8360	1333.2	12.07	1.8338	1333.1
650	13.43	1.8629	1357.6	13.16	1.8607	1357.5	12.90	1.8585	1357.5	12.65	1.8563	1357.4

	53 [284.7]			54 [285.9]			55 [287.1]			56 [288.2]		
Sat.	8.07	1.6562	1176.7	7.93	1.6547	1177.1	7.80	1.6532	1177.5	7.67	1.6517	1177.8
290	8.14	1.6599	1179.5	7.99	1.6576	1179.3	7.84	1.6553	1179.0	7.69	1.6530	1178.7
300	8.27	1.6668	1184.8	8.11	1.6645	1184.5	7.96	1.6622	1184.3	7.81	1.6600	1184.0
310	8.40	1.6736	1190.0	8.23	1.6713	1189.7	8.08	1.6690	1189.5	7.93	1.6668	1189.2
320	8.52	1.6803	1195.1	8.36	1.6780	1194.9	8.20	1.6757	1194.7	8.05	1.6735	1194.4
330	8.64	1.6868	1200.3	8.48	1.6846	1200.0	8.32	1.6823	1199.8	8.17	1.6801	1199.6
340	8.77	1.6933	1205.4	8.60	1.6910	1205.1	8.44	1.6888	1204.9	8.29	1.6866	1204.7
350	8.89	1.6995	1210.4	8.72	1.6973	1210.2	8.56	1.6951	1210.0	8.40	1.6929	1209.8
360	9.02	1.7057	1215.4	8.84	1.7035	1215.2	8.68	1.7013	1215.1	8.52	1.6991	1214.9
370	9.14	1.7118	1220.4	8.96	1.7096	1220.3	8.80	1.7074	1220.1	8.64	1.7053	1219.9
380	9.26	1.7178	1225.4	9.08	1.7156	1225.3	8.92	1.7134	1225.1	8.75	1.7113	1224.9
390	9.38	1.7237	1230.4	9.20	1.7215	1230.3	9.03	1.7193	1230.1	8.87	1.7172	1229.9
400	9.50	1.7295	1235.4	9.32	1.7273	1235.3	9.15	1.7251	1235.1	8.98	1.7230	1234.9
410	9.62	1.7352	1240.4	9.44	1.7330	1240.2	9.26	1.7308	1240.1	9.09	1.7287	1239.9
420	9.74	1.7409	1245.3	9.55	1.7387	1245.1	9.38	1.7365	1245.0	9.21	1.7344	1244.9
430	9.86	1.7464	1250.2	9.67	1.7442	1250.1	9.49	1.7421	1249.9	9.32	1.7400	1249.8
440	9.98	1.7519	1255.1	9.79	1.7497	1255.0	9.61	1.7476	1254.8	9.43	1.7455	1254.7
450	10.09	1.7573	1260.0	9.90	1.7551	1259.9	9.72	1.7530	1259.8	9.55	1.7509	1259.6
460	10.21	1.7627	1264.9	10.02	1.7605	1264.8	9.84	1.7584	1264.7	9.66	1.7563	1264.5
470	10.33	1.7680	1269.8	10.14	1.7658	1269.7	9.95	1.7637	1269.6	9.77	1.7616	1269.4
480	10.45	1.7732	1274.7	10.25	1.7710	1274.6	10.06	1.7689	1274.4	9.88	1.7668	1274.3
490	10.56	1.7783	1279.5	10.37	1.7762	1279.4	10.18	1.7741	1279.3	9.99	1.7720	1279.2
500	10.68	1.7834	1284.4	10.48	1.7813	1284.3	10.29	1.7792	1284.2	10.10	1.7771	1284.1
550	11.26	1.8081	1308.7	11.05	1.8060	1308.6	10.85	1.8039	1308.5	10.65	1.8018	1308.5
600	12.84	1.8316	1333.0	11.62	1.8295	1332.9	11.41	1.8274	1332.9	11.20	1.8254	1332.8
650	13.41	1.8541	1357.4	12.18	1.8520	1357.3	11.96	1.8500	1357.3	11.75	1.8479	1357.2

Pressure	57 [289.4]			58 [290.5]			59 [291.6]			60 [292.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	7.54	1.6503	1178.1	7.42	1.6489	1178.5	7.30	1.6475	1178.8	7.18	1.6462	1179.1
300	7.67	1.6578	1183.8	7.53	1.6556	1183.5	7.40	1.6534	1183.2	7.27	1.6513	1183.0
310	7.79	1.6646	1189.0	7.65	1.6624	1188.8	7.51	1.6603	1188.5	7.38	1.6582	1188.3
320	7.90	1.6713	1194.2	7.76	1.6692	1194.0	7.63	1.6671	1193.8	7.49	1.6650	1193.5
330	8.02	1.6779	1199.4	7.88	1.6758	1199.2	7.74	1.6737	1199.0	7.61	1.6716	1198.7
340	8.14	1.6844	1204.5	7.99	1.6823	1204.3	7.85	1.6802	1204.1	7.72	1.6781	1203.9
350	8.25	1.6907	1209.6	8.10	1.6886	1209.4	7.96	1.6865	1209.2	7.83	1.6845	1209.0
360	8.37	1.6970	1214.7	8.22	1.6949	1214.5	8.08	1.6928	1214.3	7.94	1.6908	1214.1
370	8.48	1.7031	1219.7	8.33	1.7010	1219.6	8.19	1.6990	1219.4	8.05	1.6970	1219.2
380	8.59	1.7091	1224.8	8.44	1.7070	1224.6	8.30	1.7050	1224.4	8.16	1.7030	1224.3
390	8.71	1.7151	1229.8	8.56	1.7130	1229.6	8.41	1.7110	1229.5	8.26	1.7090	1229.3
400	8.82	1.7209	1234.8	8.67	1.7188	1234.6	8.52	1.7168	1234.5	8.37	1.7148	1234.3
410	8.93	1.7266	1239.8	8.78	1.7246	1239.6	8.62	1.7226	1239.5	8.48	1.7206	1239.3
420	9.04	1.7323	1244.7	8.88	1.7303	1244.6	8.73	1.7283	1244.4	8.58	1.7263	1244.3
430	9.15	1.7379	1249.6	8.99	1.7359	1249.5	8.84	1.7339	1249.4	8.69	1.7319	1249.2
440	9.27	1.7434	1254.6	9.10	1.7414	1254.5	8.95	1.7394	1254.3	8.80	1.7374	1254.2
450	9.38	1.7488	1259.5	9.21	1.7468	1259.4	9.05	1.7448	1259.3	8.90	1.7429	1259.1
460	9.49	1.7542	1264.4	9.32	1.7522	1264.3	9.16	1.7502	1264.2	9.01	1.7483	1264.1
470	9.60	1.7595	1269.3	9.43	1.7575	1269.2	9.27	1.7555	1269.1	9.11	1.7536	1269.0
480	9.71	1.7648	1274.2	9.54	1.7628	1274.1	9.37	1.7608	1274.0	9.21	1.7588	1273.9
490	9.81	1.7700	1279.1	9.64	1.7680	1279.0	9.48	1.7660	1278.9	9.32	1.7640	1278.8
500	9.92	1.7751	1284.0	9.75	1.7731	1283.9	9.58	1.7711	1283.8	9.42	1.7692	1283.7
550	10.46	1.7998	1308.4	10.28	1.7978	1308.3	10.11	1.7959	1308.2	9.94	1.7940	1308.1
600	11.00	1.8234	1332.7	10.81	1.8214	1332.7	10.63	1.8195	1332.6	10.45	1.8176	1332.5
650	11.54	1.8459	1357.2	11.34	1.8440	1357.1	11.15	1.8421	1357.1	10.96	1.8402	1357.0
700	12.07	1.8675	1381.7	11.86	1.8656	1381.7	11.66	1.8637	1381.6	11.47	1.8618	1381.6

	61 [293.8]			62 [294.9]			63 [295.9]			64 [296.9]		
Sat.	7.07	1.6448	1179.4	6.97	1.6435	1179.7	6.86	1.6422	1180.0	6.76	1.6409	1180.3
300	7.15	1.6492	1182.7	7.02	1.6471	1182.5	6.91	1.6451	1182.2	6.80	1.6431	1181.9
310	7.26	1.6561	1188.0	7.13	1.6541	1187.8	7.02	1.6521	1187.5	6.90	1.6501	1187.3
320	7.37	1.6629	1193.3	7.24	1.6609	1193.1	7.12	1.6589	1192.8	7.01	1.6569	1192.6
330	7.48	1.6696	1198.5	7.35	1.6676	1198.3	7.23	1.6656	1198.1	7.11	1.6636	1197.9
340	7.59	1.6761	1203.7	7.46	1.6741	1203.5	7.34	1.6721	1203.3	7.22	1.6702	1203.1
350	7.70	1.6825	1208.8	7.57	1.6805	1208.6	7.45	1.6785	1208.4	7.32	1.6766	1208.2
360	7.80	1.6888	1213.9	7.67	1.6868	1213.7	7.55	1.6848	1213.6	7.43	1.6829	1213.4
370	7.91	1.6950	1219.0	7.78	1.6930	1218.8	7.65	1.6910	1218.7	7.53	1.6891	1218.5
380	8.02	1.7010	1224.1	7.89	1.6990	1223.9	7.76	1.6971	1223.8	7.63	1.6952	1223.6
390	8.12	1.7070	1229.1	7.99	1.7050	1229.0	7.86	1.7031	1228.8	7.73	1.7012	1228.6
400	8.23	1.7128	1234.2	8.09	1.7109	1234.0	7.96	1.7090	1233.9	7.84	1.7071	1233.7
410	8.34	1.7186	1239.2	8.20	1.7167	1239.0	8.06	1.7148	1238.9	7.94	1.7129	1238.7
420	8.44	1.7243	1244.2	8.30	1.7224	1244.0	8.17	1.7205	1243.9	8.04	1.7187	1243.7
430	8.54	1.7299	1249.1	8.40	1.7280	1249.0	8.27	1.7261	1248.8	8.14	1.7243	1248.7
440	8.65	1.7355	1254.1	8.51	1.7336	1253.9	8.37	1.7317	1253.8	8.24	1.7298	1253.7
450	8.75	1.7409	1259.0	8.61	1.7390	1258.9	8.47	1.7372	1258.8	8.34	1.7353	1258.6
460	8.86	1.7463	1264.0	8.71	1.7444	1263.8	8.57	1.7426	1263.7	8.44	1.7407	1263.6
470	8.96	1.7516	1268.9	8.81	1.7497	1268.8	8.67	1.7479	1268.7	8.53	1.7461	1268.5
480	9.06	1.7569	1273.8	8.91	1.7550	1273.7	8.77	1.7532	1273.6	8.63	1.7514	1273.5
490	9.16	1.7621	1278.7	9.01	1.7602	1278.6	8.87	1.7584	1278.5	8.73	1.7566	1278.4
500	9.27	1.7672	1283.6	9.11	1.7654	1283.5	8.97	1.7635	1283.4	8.83	1.7617	1283.3
550	9.77	1.7921	1308.1	9.61	1.7902	1308.0	9.46	1.7884	1307.9	9.31	1.7866	1307.8
600	10.28	1.8157	1332.5	10.11	1.8139	1332.4	9.95	1.8121	1332.4	9.79	1.8103	1332.3
650	10.78	1.8383	1357.0	10.60	1.8365	1356.9	10.43	1.8347	1356.9	10.27	1.8329	1356.8
700	11.28	1.8599	1381.5	11.09	1.8581	1381.5	10.92	1.8563	1381.4	10.75	1.8546	1381.4

Pressure	65 [298.0]			66 [299.0]			67 [300.0]			68 [301.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	6.66	1.6397	1180.6	6.57	1.6384	1180.9	6.48	1.6372	1181.2	6.39	1.6360	1181.5
310	6.79	1.6481	1187.1	6.69	1.6461	1186.8	6.58	1.6442	1186.6	6.48	1.6423	1186.3
320	6.90	1.6550	1192.4	6.79	1.6530	1192.1	6.68	1.6511	1191.9	6.58	1.6492	1191.7
330	7.00	1.6617	1197.6	6.89	1.6598	1197.4	6.78	1.6579	1197.2	6.68	1.6560	1197.0
340	7.11	1.6682	1202.8	6.99	1.6663	1202.6	6.88	1.6645	1202.4	6.78	1.6626	1202.2
350	7.21	1.6747	1208.0	7.10	1.6728	1207.8	6.98	1.6710	1207.6	6.88	1.6691	1207.4
360	7.31	1.6810	1213.2	7.20	1.6791	1213.0	7.08	1.6773	1212.8	6.98	1.6755	1212.6
370	7.41	1.6872	1218.3	7.30	1.6854	1218.1	7.18	1.6835	1217.9	7.07	1.6817	1217.8
380	7.51	1.6933	1223.4	7.40	1.6915	1223.2	7.28	1.6897	1223.0	7.17	1.6879	1222.9
390	7.61	1.6993	1228.5	7.49	1.6975	1228.3	7.38	1.6957	1228.1	7.27	1.6939	1228.0
400	7.71	1.7052	1233.5	7.59	1.7034	1233.4	7.48	1.7016	1233.2	7.36	1.6998	1233.1
410	7.81	1.7111	1238.6	7.69	1.7093	1238.4	7.57	1.7075	1238.3	7.46	1.7057	1238.1
420	7.91	1.7168	1243.6	7.79	1.7150	1243.4	7.67	1.7132	1243.3	7.56	1.7114	1243.2
430	8.01	1.7225	1248.6	7.89	1.7207	1248.4	7.77	1.7189	1248.3	7.65	1.7171	1248.2
440	8.11	1.7280	1253.6	7.98	1.7262	1253.4	7.86	1.7244	1253.3	7.74	1.7227	1253.2
450	8.21	1.7335	1258.5	8.08	1.7317	1258.4	7.96	1.7299	1258.3	7.84	1.7282	1258.1
460	8.30	1.7389	1263.5	8.18	1.7371	1263.4	8.05	1.7354	1263.2	7.93	1.7336	1263.1
470	8.40	1.7443	1268.4	8.27	1.7425	1268.3	8.14	1.7407	1268.2	8.02	1.7390	1268.1
480	8.50	1.7496	1273.4	8.37	1.7478	1273.3	8.24	1.7460	1273.1	8.12	1.7443	1273.0
490	8.59	1.7548	1278.3	8.46	1.7530	1278.2	8.33	1.7512	1278.1	8.21	1.7495	1278.0
500	8.69	1.7599	1283.2	8.56	1.7581	1283.1	8.43	1.7564	1283.0	8.30	1.7547	1282.9
550	9.17	1.7848	1307.7	9.03	1.7831	1307.7	8.89	1.7814	1307.6	8.76	1.7797	1307.5
600	9.64	1.8085	1332.2	9.49	1.8068	1332.2	9.35	1.8051	1332.1	9.21	1.8034	1332.0
650	10.11	1.8311	1356.7	9.96	1.8294	1356.7	9.81	1.8277	1356.6	9.66	1.8260	1356.6
700	10.58	1.8528	1381.3	10.42	1.8511	1381.3	10.26	1.8494	1381.2	10.11	1.8478	1381.2
750	11.05	1.8737	1406.1	10.88	1.8720	1406.1	10.72	1.8703	1406.0	10.56	1.8687	1406.0

	69 [302.0]			70 [302.9]			71 [303.9]			72 [304.8]		
Sat.	6.30	1.6348	1181.7	6.22	1.6336	1182.0	6.13	1.6324	1182.3	6.05	1.6313	1182.5
310	6.38	1.6405	1186.1	6.29	1.6386	1185.8	6.19	1.6368	1185.6	6.10	1.6350	1185.3
320	6.48	1.6474	1191.4	6.38	1.6456	1191.2	6.29	1.6438	1191.0	6.20	1.6420	1190.7
330	6.58	1.6542	1196.7	6.48	1.6524	1196.5	6.39	1.6506	1196.3	6.30	1.6488	1196.1
340	6.68	1.6608	1202.0	6.58	1.6590	1201.8	6.48	1.6572	1201.6	6.39	1.6554	1201.4
350	6.78	1.6673	1207.2	6.68	1.6655	1207.0	6.58	1.6638	1206.8	6.48	1.6620	1206.6
360	6.87	1.6737	1212.4	6.77	1.6719	1212.2	6.67	1.6702	1212.0	6.58	1.6684	1211.8
370	6.97	1.6799	1217.6	6.87	1.6781	1217.4	6.77	1.6764	1217.2	6.67	1.6747	1217.0
380	7.07	1.6861	1222.7	6.96	1.6843	1222.6	6.86	1.6826	1222.4	6.76	1.6809	1222.2
390	7.17	1.6921	1227.8	7.06	1.6904	1227.7	6.96	1.6887	1227.5	6.86	1.6870	1227.3
400	7.26	1.6981	1232.9	7.15	1.6964	1232.8	7.05	1.6946	1232.6	6.95	1.6929	1232.4
410	7.35	1.7040	1238.0	7.24	1.7023	1237.8	7.14	1.7005	1237.7	7.04	1.6988	1237.5
420	7.44	1.7097	1243.0	7.33	1.7080	1242.9	7.23	1.7063	1242.7	7.13	1.7046	1242.6
430	7.54	1.7154	1248.0	7.43	1.7137	1247.9	7.32	1.7120	1247.7	7.22	1.7103	1247.6
440	7.63	1.7210	1253.0	7.52	1.7193	1252.9	7.41	1.7176	1252.8	7.31	1.7159	1252.6
450	7.72	1.7265	1258.0	7.61	1.7248	1257.9	7.50	1.7231	1257.8	7.39	1.7214	1257.6
460	7.81	1.7319	1263.0	7.70	1.7302	1262.9	7.59	1.7286	1262.8	7.48	1.7269	1262.6
470	7.90	1.7373	1268.0	7.79	1.7356	1267.8	7.68	1.7339	1267.7	7.57	1.7323	1267.6
480	8.00	1.7426	1272.9	7.88	1.7409	1272.8	7.77	1.7392	1272.7	7.66	1.7376	1272.6
490	8.09	1.7478	1277.9	7.97	1.7461	1277.8	7.86	1.7445	1277.6	7.75	1.7429	1277.5
500	8.18	1.7530	1282.8	8.06	1.7513	1282.7	7.95	1.7497	1282.6	7.83	1.7480	1282.5
550	8.63	1.7780	1307.4	8.51	1.7763	1307.3	8.39	1.7747	1307.3	8.27	1.7731	1307.2
600	9.08	1.8017	1332.0	8.95	1.8001	1331.9	8.82	1.7985	1331.8	8.70	1.7969	1331.8
650	9.52	1.8244	1356.5	9.39	1.8228	1356.5	9.25	1.8212	1356.4	9.12	1.8196	1356.4
700	9.96	1.8461	1381.2	9.82	1.8445	1381.2	9.68	1.8429	1381.1	9.55	1.8414	1381.1
750	10.40	1.8670	1406.0	10.25	1.8654	1405.9	10.11	1.8638	1405.9	9.97	1.8623	1405.8

Pressure	73 [305.8]			74 [306.7]			75 [307.6]			76 [308.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	5.97	1.6302	1182.8	5.90	1.6291	1183.0	5.82	1.6280	1183.3	5.75	1.6269	1183.5
310	6.02	1.6332	1185.1	5.93	1.6314	1184.8	5.85	1.6297	1184.6	5.77	1.6280	1184.3
320	6.11	1.6402	1190.5	6.03	1.6384	1190.2	5.94	1.6367	1190.0	5.86	1.6350	1189.8
330	6.21	1.6470	1195.8	6.12	1.6453	1195.6	6.03	1.6436	1195.4	5.95	1.6419	1195.2
340	6.30	1.6537	1201.1	6.21	1.6520	1200.9	6.13	1.6503	1200.7	6.04	1.6486	1200.5
350	6.39	1.6603	1206.4	6.30	1.6586	1206.2	6.22	1.6569	1206.0	6.13	1.6552	1205.8
360	6.48	1.6667	1211.6	6.39	1.6650	1211.4	6.31	1.6633	1211.3	6.22	1.6617	1211.1
370	6.58	1.6730	1216.8	6.48	1.6713	1216.6	6.40	1.6697	1216.5	6.31	1.6680	1216.3
380	6.67	1.6792	1222.0	6.57	1.6775	1221.8	6.48	1.6759	1221.7	6.40	1.6742	1221.5
390	6.76	1.6853	1227.2	6.66	1.6836	1227.0	6.57	1.6820	1226.8	6.48	1.6804	1226.6
400	6.85	1.6913	1232.3	6.75	1.6896	1232.1	6.66	1.6880	1232.0	6.57	1.6864	1231.8
410	6.94	1.6971	1237.4	6.84	1.6955	1237.2	6.75	1.6939	1237.1	6.66	1.6923	1236.9
420	7.03	1.7029	1242.4	6.93	1.7013	1242.3	6.84	1.6997	1242.1	6.74	1.6981	1242.0
430	7.12	1.7086	1247.5	7.02	1.7070	1247.3	6.92	1.7054	1247.2	6.83	1.7038	1247.1
440	7.20	1.7142	1252.5	7.10	1.7126	1252.4	7.01	1.7110	1252.2	6.91	1.7094	1252.1
450	7.29	1.7198	1257.5	7.19	1.7182	1257.4	7.09	1.7166	1257.3	7.00	1.7150	1257.1
460	7.38	1.7253	1262.5	7.28	1.7237	1262.4	7.18	1.7221	1262.3	7.08	1.7205	1262.1
470	7.47	1.7307	2167.5	7.36	1.7291	1267.4	7.26	1.7275	1267.3	7.17	1.7259	1267.1
480	7.55	1.7360	1272.5	7.45	1.7344	1272.4	7.35	1.7328	1272.3	7.25	1.7312	1272.1
490	7.64	1.7412	1277.4	7.53	1.7396	1277.3	7.43	1.7381	1277.2	7.33	1.7365	1277.1
500	7.73	1.7464	1282.4	7.62	1.7448	1282.3	7.52	1.7433	1282.2	7.42	1.7417	1282.1
550	8.15	1.7715	1307.1	8.04	1.7699	1307.0	7.93	1.7684	1306.9	7.83	1.7669	1306.8
600	8.58	1.7953	1331.7	8.46	1.7937	1331.6	8.35	1.7922	1331.6	8.24	1.7907	1331.5
650	9.00	1.8180	1356.3	8.88	1.8165	1356.3	8.76	1.8150	1356.2	8.64	1.8135	1356.1
700	9.42	1.8398	1381.0	9.29	1.8383	1381.0	9.16	1.8368	1380.9	9.04	1.8353	1380.9
750	9.83	1.8607	1405.8	9.70	1.8592	1405.8	9.57	1.8577	1405.7	9.44	1.8562	1405.7

	77 [309.4]			78 [310.3]			79 [311.2]			80 [312.0]		
Sat.	5.68	1.6259	1183.8	5.61	1.6248	1184.0	5.55	1.6238	1184.2	5.48	1.6227	1184.4
320	5.78	1.6333	1189.5	5.70	1.6317	1189.3	5.63	1.6300	1189.0	5.55	1.6284	1188.8
330	5.87	1.6402	1194.9	5.79	1.6386	1194.7	5.71	1.6369	1194.5	5.64	1.6353	1194.2
340	5.96	1.6470	1200.3	5.88	1.6453	1200.1	5.80	1.6437	1199.9	5.73	1.6421	1199.6
350	6.05	1.6536	1205.6	5.97	1.6519	1205.4	5.89	1.6503	1205.2	5.81	1.6487	1205.0
360	6.14	1.6601	1210.9	6.05	1.6584	1210.7	5.97	1.6568	1210.5	5.90	1.6553	1210.3
370	6.22	1.6664	1216.1	6.14	1.6648	1215.9	6.06	1.6632	1215.7	5.98	1.6616	1215.5
380	6.31	1.6726	1221.3	6.23	1.6710	1221.1	6.15	1.6695	1221.0	6.07	1.6679	1220.8
390	6.40	1.6788	1226.5	6.31	1.6772	1226.3	6.23	1.6756	1226.2	6.15	1.6741	1226.0
400	6.48	1.6848	1231.6	6.40	1.6832	1231.5	6.31	1.6816	1231.3	6.23	1.6801	1231.1
410	6.57	1.6907	1236.7	6.48	1.6891	1236.6	6.40	1.6876	1236.4	6.32	1.6861	1236.3
420	6.65	1.6965	1241.8	6.57	1.6950	1241.7	6.48	1.6934	1241.5	6.40	1.6919	1241.4
430	6.74	1.7022	1246.9	6.65	1.7007	1246.8	6.56	1.6992	1246.6	6.48	1.6977	1246.5
440	6.82	1.7079	1252.0	6.73	1.7064	1251.8	6.65	1.7048	1251.7	6.56	1.7033	1251.6
450	6.91	1.7135	1257.0	6.82	1.7119	1256.9	6.73	1.7104	1256.8	6.64	1.7089	1256.6
460	6.99	1.7190	1262.0	6.90	1.7174	1261.9	6.81	1.7159	1261.8	6.72	1.7144	1261.7
470	7.07	1.7244	1267.0	6.98	1.7229	1266.9	6.89	1.7214	1266.8	6.80	1.7199	1266.7
480	7.16	1.7297	1272.0	7.06	1.7282	1271.9	6.97	1.7267	1271.8	6.88	1.7252	1271.7
490	7.24	1.7350	1277.0	7.14	1.7335	1276.9	7.05	1.7320	1276.8	6.96	1.7305	1276.7
500	7.32	1.7402	1282.0	7.22	1.7387	1281.9	7.13	1.7372	1281.8	7.04	1.7357	1281.7
550	7.73	1.7653	1306.8	7.63	1.7638	1306.7	7.53	1.7624	1306.6	7.43	1.7609	1306.5
600	8.13	1.7892	1331.4	8.02	1.7877	1331.4	7.92	1.7863	1331.3	7.82	1.7848	1331.2
650	8.53	1.8120	1356.1	8.42	1.8105	1356.0	8.31	1.8091	1356.0	8.21	1.8076	1355.9
700	8.92	1.8338	1380.8	8.81	1.8323	1380.8	8.70	1.8309	1380.7	8.59	1.8294	1380.7
750	9.32	1.8547	1405.6	9.20	1.8533	1405.6	9.08	1.8519	1405.6	8.97	1.8504	1405.5
800	9.71	1.8749	1430.6	9.59	1.8735	1430.6	9.47	1.8721	1430.6	9.35	1.8707	1430.5

Pressure	81 [312.9]			82 [313.7]			83 [314.6]			84 [315.4]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	5.42	1.6217	1184.7	5.35	1.6207	1184.9	5.29	1.6197	1185.1	5.23	1.6187	1185.3
320	5.48	1.6268	1188.6	5.41	1.6252	1188.3	5.34	1.6236	1188.1	5.27	1.6220	1187.8
330	5.57	1.6337	1194.0	5.49	1.6321	1193.8	5.42	1.6305	1193.6	5.36	1.6290	1193.3
340	5.65	1.6405	1199.4	5.58	1.6389	1199.2	5.51	1.6374	1199.0	5.44	1.6358	1198.8
350	5.74	1.6472	1204.8	5.66	1.6456	1204.6	5.59	1.6441	1204.4	5.52	1.6425	1204.2
360	5.82	1.6537	1210.1	5.75	1.6521	1209.9	5.68	1.6506	1209.7	5.60	1.6491	1209.5
370	5.91	1.6601	1215.4	5.83	1.6585	1215.2	5.76	1.6570	1215.0	5.69	1.6555	1214.8
380	5.99	1.6664	1220.6	5.91	1.6648	1220.4	5.84	1.6633	1220.2	5.77	1.6618	1220.1
390	6.07	1.6725	1225.8	5.99	1.6710	1225.6	5.92	1.6695	1225.5	5.85	1.6680	1225.3
400	6.15	1.6786	1231.0	6.07	1.6771	1230.8	6.00	1.6756	1230.7	5.93	1.6741	1230.5
410	6.23	1.6845	1236.1	6.16	1.6830	1236.0	6.08	1.6815	1235.8	6.01	1.6801	1235.7
420	6.32	1.6904	1241.3	6.24	1.6889	1241.1	6.16	1.6874	1241.0	6.08	1.6860	1240.8
430	6.40	1.6962	1246.4	6.32	1.6947	1246.2	6.24	1.6932	1246.1	6.16	1.6918	1245.9
440	6.48	1.7018	1251.4	6.40	1.7003	1251.3	6.32	1.6989	1251.2	6.24	1.6974	1251.0
450	6.56	1.7074	1256.5	6.48	1.7059	1256.4	6.40	1.7045	1256.2	6.32	1.7031	1256.1
460	6.64	1.7129	1261.5	6.55	1.7114	1261.4	6.47	1.7100	1261.3	6.39	1.7086	1261.2
470	6.72	1.7184	1266.6	6.63	1.7169	1266.5	6.55	1.7155	1266.3	6.47	1.7141	1266.2
480	6.80	1.7237	1271.6	6.71	1.7223	1271.5	6.63	1.7209	1271.4	6.55	1.7194	1271.2
490	6.87	1.7290	1276.6	6.79	1.7276	1276.5	6.70	1.7262	1276.4	6.62	1.7247	1276.3
500	6.95	1.7343	1281.6	6.87	1.7328	1281.5	6.78	1.7314	1281.4	6.70	1.7300	1281.3
550	7.34	1.7595	1306.4	7.25	1.7581	1306.4	7.16	1.7567	1306.3	7.08	1.7553	1306.2
600	7.72	1.7834	1331.2	7.63	1.7820	1331.1	7.54	1.7806	1331.0	7.45	1.7792	1330.9
650	8.10	1.8062	1355.9	8.01	1.8048	1355.8	7.91	1.8034	1355.8	7.81	1.8020	1355.7
700	8.48	1.8280	1380.6	8.38	1.8266	1380.6	8.28	1.8253	1380.5	8.18	1.8239	1380.5
750	8.86	1.8490	1405.5	8.75	1.8476	1405.5	8.64	1.8463	1405.4	8.54	1.8449	1405.4
800	9.23	1.8693	1430.5	9.12	1.8679	1430.5	9.01	1.8666	1430.4	8.90	1.8652	1430.4

	85 [316.3]			86 [317.1]			87 [317.9]			88 [318.7]		
Sat.	5.18	1.6178	1185.5	5.12	1.6168	1185.7	5.06	1.6159	1185.9	5.01	1.6149	1186.1
320	5.21	1.6204	1187.6	5.14	1.6189	1187.4	5.08	1.6174	1187.1	5.02	1.6159	1186.9
330	5.29	1.6274	1193.1	5.23	1.6259	1192.9	5.16	1.6244	1192.6	5.10	1.6229	1192.4
340	5.37	1.6343	1198.5	5.31	1.6328	1198.3	5.24	1.6313	1198.1	5.18	1.6298	1197.9
350	5.46	1.6410	1203.9	5.39	1.6395	1203.7	5.32	1.6380	1203.5	5.26	1.6366	1203.3
360	5.54	1.6476	1209.3	5.47	1.6461	1209.1	5.40	1.6446	1208.9	5.34	1.6432	1208.7
370	5.62	1.6540	1214.6	5.55	1.6525	1214.4	5.48	1.6510	1214.2	5.42	1.6496	1214.0
380	5.70	1.6603	1219.9	5.63	1.6589	1219.7	5.56	1.6574	1219.5	5.50	1.6560	1219.3
390	5.78	1.6665	1225.1	5.71	1.6651	1225.0	5.64	1.6637	1224.8	5.57	1.6622	1224.6
400	5.85	1.6726	1230.3	5.78	1.6712	1230.2	5.72	1.6698	1230.0	5.65	1.6684	1229.8
410	5.93	1.6786	1235.5	5.86	1.6772	1235.4	5.79	1.6758	1235.2	5.72	1.6744	1235.0
420	6.01	1.6845	1240.7	5.94	1.6831	1240.5	5.87	1.6817	1240.4	5.80	1.6803	1240.2
430	6.09	1.6903	1245.8	6.01	1.6889	1245.6	5.94	1.6875	1245.5	5.87	1.6861	1245.4
440	6.16	1.6960	1250.9	6.09	1.6946	1250.7	6.02	1.6932	1250.6	5.95	1.6918	1250.5
450	6.24	1.7016	1256.0	6.17	1.7002	1255.8	6.09	1.6988	1255.7	6.02	1.6975	1255.6
460	6.32	1.7072	1261.0	6.24	1.7058	1260.9	6.17	1.7044	1260.8	6.10	1.7030	1260.7
470	6.39	1.7126	1266.1	6.32	1.7112	1266.0	6.24	1.7099	1265.9	6.17	1.7085	1265.7
480	6.47	1.7180	1271.1	6.39	1.7166	1271.0	6.32	1.7153	1270.9	6.24	1.7139	1270.8
490	6.54	1.7233	1276.1	6.47	1.7220	1276.0	6.39	1.7206	1275.9	6.32	1.7192	1275.8
500	6.62	1.7286	1281.2	6.54	1.7272	1281.1	6.46	1.7258	1281.0	6.39	1.7245	1280.9
550	6.99	1.7539	1306.1	6.91	1.7525	1306.0	6.83	1.7512	1305.9	6.75	1.7499	1305.8
600	7.36	1.7779	1330.9	7.27	1.7765	1330.8	7.19	1.7752	1330.7	7.10	1.7739	1330.7
650	7.72	1.8007	1355.6	7.63	1.7994	1355.6	7.54	1.7981	1355.5	7.45	1.7968	1355.5
700	8.08	1.8226	1380.4	7.99	1.8213	1380.4	7.89	1.8200	1380.3	7.80	1.8187	1380.3
750	8.44	1.8436	1405.3	8.34	1.8423	1405.3	8.24	1.8410	1405.3	8.15	1.8397	1405.2
800	8.80	1.8639	1430.4	8.69	1.8626	1430.3	8.59	1.8613	1430.3	8.50	1.8600	1430.3

Pressure	89 [319.5]			90 [320.3]			91 [321.0]			92 [321.8]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	4.96	1.6140	1186.3	4.91	1.6131	1186.5	4.85	1.6122	1186.7	4.81	1.6113	1186.9
330	5.04	1.6214	1192.2	4.98	1.6200	1191.9	4.93	1.6185	1191.7	4.87	1.6171	1191.5
340	5.12	1.6283	1197.7	5.06	1.6269	1197.5	5.00	1.6254	1197.2	4.94	1.6240	1197.0
350	5.20	1.6351	1203.1	5.14	1.6337	1202.9	5.08	1.6322	1202.7	5.02	1.6308	1202.5
360	5.28	1.6417	1208.5	5.22	1.6403	1208.3	5.16	1.6389	1208.1	5.10	1.6375	1207.9
370	5.36	1.6482	1213.8	5.29	1.6468	1213.7	5.23	1.6454	1213.5	5.17	1.6440	1213.3
380	5.43	1.6546	1219.1	5.37	1.6532	1219.0	5.31	1.6518	1218.8	5.25	1.6504	1218.6
390	5.51	1.6608	1224.4	5.45	1.6594	1224.3	5.38	1.6580	1224.1	5.32	1.6567	1223.9
400	5.58	1.6670	1229.7	5.52	1.6656	1229.5	5.46	1.6642	1229.3	5.40	1.6628	1229.2
410	5.66	1.6730	1234.9	5.59	1.6716	1234.7	5.53	1.6703	1234.6	5.47	1.6689	1234.4
420	5.73	1.6789	1240.1	5.67	1.6775	1239.9	5.60	1.6762	1239.8	5.54	1.6748	1239.6
430	5.81	1.6847	1245.2	5.74	1.6834	1245.1	5.67	1.6820	1244.9	5.61	1.6807	1244.8
440	5.88	1.6904	1250.3	5.81	1.6891	1250.2	5.75	1.6878	1250.1	5.68	1.6864	1249.9
450	5.95	1.6961	1255.4	5.89	1.6948	1255.3	5.82	1.6934	1255.2	5.75	1.6921	1255.1
460	6.03	1.7017	1260.5	5.96	1.7003	1260.4	5.89	1.6990	1260.3	5.83	1.6977	1260.2
470	6.10	1.7072	1265.6	6.03	1.7058	1265.5	5.96	1.7045	1265.4	5.90	1.7032	1265.3
480	6.17	1.7126	1270.7	6.10	1.7113	1270.6	6.03	1.7099	1270.4	5.97	1.7086	1270.3
490	6.24	1.7179	1275.7	6.17	1.7166	1275.6	6.10	1.7153	1275.5	6.04	1.7140	1275.4
500	6.32	1.7232	1280.7	6.24	1.7218	1280.6	6.17	1.7205	1280.5	6.11	1.7192	1280.4
550	6.67	1.7486	1305.7	6.60	1.7472	1305.7	6.52	1.7459	1305.6	6.45	1.7447	1305.5
600	7.02	1.7726	1330.6	6.95	1.7713	1330.5	6.87	1.7700	1330.5	6.79	1.7688	1330.4
650	7.37	1.7955	1355.4	7.29	1.7942	1355.4	7.21	1.7930	1355.3	7.13	1.7917	1355.3
700	7.72	1.8174	1380.2	7.63	1.8161	1380.2	7.55	1.8149	1380.1	7.46	1.8136	1380.1
750	8.06	1.8384	1405.2	7.97	1.8372	1405.1	7.88	1.8359	1405.1	7.79	1.8347	1405.1
800	8.40	1.8587	1430.3	8.31	1.8575	1430.2	8.21	1.8562	1430.2	8.12	1.8550	1430.2
850	8.74	1.8784	1455.5	8.64	1.8771	1455.4	8.55	1.8759	1455.4	8.45	1.8447	1455.4

	93 [322.6]			94 [323.3]			95 [324.1]			96 [324.8]		
Sat.	4.76	1.6105	1187.1	4.71	1.6096	1187.3	4.66	1.6087	1187.5	4.62	1.6079	1187.7
330	4.81	1.6156	1191.2	4.76	1.6142	1191.0	4.71	1.6128	1190.8	4.65	1.6114	1190.5
340	4.89	1.6226	1196.8	4.83	1.6212	1196.5	4.78	1.6198	1196.3	4.73	1.6184	1196.1
350	4.97	1.6294	1202.3	4.91	1.6280	1202.0	4.86	1.6266	1201.8	4.80	1.6253	1201.6
360	5.04	1.6361	1207.7	4.99	1.6347	1207.5	4.93	1.6334	1207.3	4.88	1.6320	1207.1
370	5.12	1.6426	1213.1	5.06	1.6413	1212.9	5.00	1.6399	1212.7	4.95	1.6386	1212.5
380	5.19	1.6490	1218.4	5.13	1.6477	1218.3	5.08	1.6463	1218.1	5.02	1.6450	1217.9
390	5.26	1.6553	1223.7	5.21	1.6540	1223.6	5.15	1.6526	1223.4	5.09	1.6513	1223.2
400	5.34	1.6615	1229.0	5.28	1.6601	1228.8	5.22	1.6588	1228.7	5.16	1.6575	1228.5
410	5.41	1.6676	1234.3	5.35	1.6662	1234.1	5.29	1.6649	1233.9	5.23	1.6636	1233.8
420	5.48	1.6735	1239.5	5.42	1.6722	1239.3	5.36	1.6709	1239.1	5.30	1.6696	1239.0
430	5.55	1.6794	1244.6	5.49	1.6781	1244.5	5.43	1.6768	1244.3	5.37	1.6755	1244.2
440	5.62	1.6851	1249.8	5.56	1.6838	1249.7	5.50	1.6825	1249.5	5.44	1.6812	1249.4
450	5.69	1.6908	1254.9	5.63	1.6895	1254.8	5.57	1.6882	1254.7	5.51	1.6869	1254.5
460	5.76	1.6964	1260.0	5.70	1.6951	1259.9	5.64	1.6938	1259.8	5.58	1.6926	1259.7
470	5.83	1.7019	1265.1	5.77	1.7006	1265.0	5.71	1.6993	1264.9	5.65	1.6981	1264.8
480	5.90	1.7073	1270.2	5.84	1.7060	1270.1	5.77	1.7048	1270.0	5.71	1.7035	1269.9
490	5.97	1.7127	1275.3	5.91	1.7114	1275.2	5.84	1.7101	1275.1	5.78	1.7089	1275.0
500	6.04	1.7180	1280.3	5.97	1.7167	1280.2	5.91	1.7154	1280.1	5.85	1.7142	1280.0
550	6.38	1.7434	1305.4	6.31	1.7422	1305.3	6.25	1.7409	1305.2	6.18	1.7397	1305.1
600	6.72	1.7675	1330.3	6.65	1.7663	1330.2	6.58	1.7651	1330.2	6.51	1.7639	1330.1
650	7.05	1.7905	1355.2	6.98	1.7893	1355.1	6.90	1.7881	1355.1	6.83	1.7869	1355.0
700	7.38	1.8124	1380.1	7.30	1.8112	1380.0	7.22	1.8100	1380.0	7.15	1.8088	1379.9
750	7.71	1.8335	1405.0	7.63	1.8323	1405.0	7.55	1.8311	1404.9	7.47	1.8299	1404.9
800	8.04	1.8538	1430.1	7.95	1.8526	1430.1	7.87	1.8514	1430.0	7.78	1.8502	1430.0
850	8.36	1.8735	1455.3	8.27	1.8723	1455.3	8.19	1.8711	1455.3	8.10	1.8699	1455.3

Pressure	97 [325.6]			98 [326.3]			99 [327.1]			100 [327.8]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	4.57	1.6070	1187.8	4.53	1.6062	1188.0	4.48	1.6053	1188.2	4.44	1.6045	1188.4
330	4.60	1.6100	1190.3	4.55	1.6086	1190.1	4.50	1.6073	1189.8	4.46	1.6059	1189.6
340	4.68	1.6171	1195.9	4.63	1.6157	1195.7	4.58	1.6144	1195.4	4.53	1.6130	1195.2
350	4.75	1.6239	1201.4	4.70	1.6226	1201.2	4.65	1.6213	1201.0	4.60	1.6199	1200.8
360	4.82	1.6307	1206.9	4.77	1.6293	1206.7	4.72	1.6280	1206.5	4.67	1.6267	1206.3
370	4.90	1.6372	1212.3	4.84	1.6359	1212.1	4.79	1.6346	1211.9	4.74	1.6333	1211.7
380	4.97	1.6437	1217.7	4.91	1.6424	1217.5	4.86	1.6411	1217.3	4.81	1.6398	1217.1
390	5.04	1.6500	1223.0	4.98	1.6487	1222.9	4.93	1.6474	1222.7	4.88	1.6461	1222.5
400	5.11	1.6562	1228.3	5.05	1.6549	1228.2	5.00	1.6536	1228.0	4.95	1.6523	1227.8
410	5.18	1.6623	1233.6	5.12	1.6610	1233.5	5.07	1.6598	1233.3	5.02	1.6585	1233.1
420	5.24	1.6683	1238.8	5.19	1.6670	1238.7	5.14	1.6658	1238.5	5.08	1.6645	1238.4
430	5.31	1.6742	1244.0	5.26	1.6729	1243.9	5.20	1.6717	1243.8	5.15	1.6704	1243.6
440	5.38	1.6800	1249.2	5.33	1.6787	1249.1	5.27	1.6775	1249.0	5.22	1.6762	1248.8
450	5.45	1.6857	1254.4	5.39	1.6844	1254.3	5.34	1.6832	1254.1	5.28	1.6820	1254.0
460	5.52	1.6913	1259.5	5.46	1.6900	1259.4	5.40	1.6888	1259.3	5.35	1.6876	1259.2
470	5.59	1.6968	1264.6	5.53	1.6956	1264.5	5.47	1.6944	1264.4	5.41	1.6932	1264.3
480	5.65	1.7023	1269.7	5.59	1.7011	1269.6	5.54	1.6998	1269.5	5.48	1.6986	1269.4
490	5.72	1.7077	1274.8	5.66	1.7064	1274.7	5.60	1.7052	1274.6	5.54	1.7040	1274.5
500	5.78	1.7130	1279.9	5.72	1.7117	1279.8	5.67	1.7105	1279.7	5.61	1.7093	1279.6
550	6.11	1.7385	1305.1	6.05	1.7373	1305.0	5.99	1.7361	1304.9	5.93	1.7349	1304.8
600	6.44	1.7627	1330.0	6.37	1.7615	1330.0	6.31	1.7603	1329.9	6.24	1.7592	1329.8
650	6.76	1.7857	1355.0	6.69	1.7845	1354.9	6.62	1.7833	1354.8	6.55	1.7822	1354.8
700	7.08	1.8076	1379.9	7.00	1.8065	1379.8	6.93	1.8053	1379.8	6.86	1.8042	1379.7
750	7.39	1.8287	1404.9	7.31	1.8276	1404.8	7.24	1.8264	1404.8	7.17	1.8253	1404.7
800	7.70	1.8491	1430.0	7.62	1.8479	1429.9	7.55	1.8468	1429.9	7.47	1.8456	1429.9
850	8.02	1.8687	1455.2	7.93	1.8676	1455.2	7.85	1.8665	1455.2	7.77	1.8653	1455.1

	101 [328.5]			102 [329.2]			103 [330.0]			104 [330.7]		
Sat.	4.40	1.6037	1188.5	4.36	1.6028	1188.7	4.32	1.6020	1188.9	4.28	1.6012	1189.0
340	4.48	1.6117	1195.0	4.43	1.6104	1194.8	4.39	1.6091	1194.5	4.34	1.6078	1194.3
350	4.55	1.6186	1200.6	4.50	1.6173	1200.3	4.46	1.6160	1200.1	4.41	1.6147	1199.9
360	4.62	1.6254	1206.1	4.57	1.6241	1205.9	4.53	1.6228	1205.7	4.48	1.6215	1205.5
370	4.69	1.6320	1211.6	4.64	1.6308	1211.4	4.60	1.6295	1211.2	4.55	1.6282	1211.0
380	4.76	1.6385	1217.0	4.71	1.6373	1216.8	4.66	1.6360	1216.6	4.62	1.6347	1216.4
390	4.83	1.6448	1222.3	4.78	1.6436	1222.2	4.73	1.6424	1222.0	4.68	1.6411	1221.8
400	4.90	1.6511	1227.7	4.85	1.6499	1227.5	4.80	1.6486	1227.3	4.75	1.6474	1227.2
410	4.97	1.6572	1233.0	4.91	1.6560	1232.8	4.86	1.6547	1232.6	4.82	1.6535	1232.5
420	5.03	1.6633	1238.2	4.98	1.6621	1238.1	4.93	1.6608	1237.9	4.88	1.6596	1237.8
430	5.10	1.6692	1243.5	5.04	1.6680	1243.3	4.99	1.6668	1243.2	4.94	1.6656	1243.0
440	5.16	1.6750	1248.7	5.11	1.6738	1248.5	5.06	1.6726	1248.4	5.01	1.6714	1248.3
450	5.23	1.6808	1253.9	5.18	1.6796	1253.7	5.12	1.6784	1253.6	5.07	1.6772	1253.5
460	5.29	1.6864	1259.0	5.24	1.6852	1258.9	5.19	1.6840	1258.8	5.14	1.6828	1258.7
470	5.36	1.6920	1264.2	5.30	1.6908	1264.0	5.25	1.6896	1263.9	5.20	1.6884	1263.8
480	5.42	1.6974	1269.3	5.37	1.6962	1269.2	5.31	1.6951	1269.1	5.26	1.6939	1268.9
490	5.49	1.7028	1274.4	5.43	1.7016	1274.3	5.38	1.7005	1274.2	5.32	1.6993	1274.1
500	5.55	1.7081	1279.5	5.50	1.7070	1279.4	5.45	1.7058	1279.3	5.39	1.7046	1279.2
550	5.87	1.7338	1304.7	5.81	1.7326	1304.6	5.75	1.7315	1304.5	5.69	1.7303	1304.4
600	6.18	1.7580	1329.8	6.12	1.7568	1329.7	6.06	1.7557	1329.6	6.00	1.7546	1329.5
650	6.49	1.7810	1354.7	6.42	1.7798	1354.7	6.36	1.7787	1354.6	6.30	1.7776	1354.5
700	6.80	1.8030	1379.7	6.73	1.8018	1379.6	6.66	1.8007	1379.6	6.60	1.7997	1379.5
750	7.10	1.8241	1404.7	7.03	1.8230	1404.7	6.96	1.8219	1404.6	6.89	1.8208	1404.6
800	7.40	1.8445	1429.8	7.32	1.8433	1429.8	7.25	1.8422	1429.8	7.18	1.8412	1429.7
850	7.70	1.8642	1455.1	7.62	1.8630	1455.1	7.55	1.8619	1455.1	7.48	1.8609	1455.0
900	8.00	1.8833	1480.6	7.92	1.8822	1480.6	7.84	1.8811	1480.5	7.77	1.8800	1480.5

Pressure	105 [331.4]			106 [332.0]			107 [332.7]			108 [333.4]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	4.24	1.6004	1189.2	4.20	1.5996	1189.4	4.17	1.5989	1189.5	4.13	1.5981	1189.7
340	4.30	1.6065	1194.1	4.26	1.6052	1193.8	4.21	1.6040	1193.6	4.17	1.6027	1193.4
350	4.37	1.6135	1199.7	4.32	1.6122	1199.5	4.28	1.6110	1199.2	4.24	1.6097	1199.0
360	4.44	1.6203	1205.3	4.39	1.6191	1205.1	4.35	1.6178	1204.8	4.31	1.6166	1204.6
370	4.50	1.6270	1210.8	4.46	1.6257	1210.6	4.42	1.6245	1210.4	4.37	1.6233	1210.2
380	4.57	1.6335	1216.2	4.52	1.6323	1216.0	4.48	1.6311	1215.9	4.44	1.6299	1215.7
390	4.64	1.6399	1221.6	4.59	1.6387	1221.4	4.55	1.6375	1221.3	4.50	1.6363	1221.1
400	4.70	1.6462	1227.0	4.66	1.6450	1226.8	4.61	1.6438	1226.7	4.57	1.6426	1226.5
410	4.77	1.6523	1232.3	4.72	1.6512	1232.2	4.67	1.6500	1232.0	4.63	1.6488	1231.8
420	4.83	1.6584	1237.6	4.79	1.6573	1237.5	4.74	1.6561	1237.3	4.69	1.6549	1237.2
430	4.90	1.6644	1242.9	4.85	1.6632	1242.7	4.80	1.6620	1242.6	4.76	1.6609	1242.5
440	4.96	1.6702	1248.1	4.91	1.6691	1248.0	4.87	1.6679	1247.8	4.82	1.6667	1247.7
450	5.02	1.6760	1253.3	4.98	1.6748	1253.2	4.93	1.6737	1253.1	4.88	1.6725	1252.9
460	5.09	1.6817	1258.5	5.04	1.6805	1258.4	4.99	1.6793	1258.3	4.94	1.6782	1258.1
470	5.15	1.6872	1263.7	5.10	1.6861	1263.6	5.05	1.6849	1263.4	5.00	1.6838	1263.3
480	5.21	1.6927	1268.8	5.16	1.6916	1268.7	5.11	1.6905	1268.6	5.06	1.6893	1268.5
490	5.27	1.6981	1273.9	5.22	1.6970	1273.8	5.17	1.6959	1273.7	5.12	1.6947	1273.6
500	5.33	1.7035	1279.0	5.28	1.7024	1278.9	5.23	1.7012	1278.8	5.18	1.7001	1278.7
550	5.64	1.7292	1304.4	5.58	1.7281	1304.3	5.53	1.7270	1304.2	5.48	1.7259	1304.1
600	5.94	1.7535	1329.5	5.88	1.7524	1329.4	5.83	1.7513	1329.3	5.77	1.7503	1329.3
650	6.24	1.7766	1354.5	6.18	1.7755	1354.4	6.12	1.7744	1354.4	6.06	1.7733	1354.3
700	6.53	1.7986	1379.5	6.47	1.7976	1379.4	6.41	1.7965	1379.4	6.35	1.7954	1379.3
750	6.82	1.8197	1404.5	6.76	1.8187	1404.5	6.70	1.8176	1404.5	6.63	1.8166	1404.4
800	7.11	1.8401	1429.7	7.05	1.8391	1429.7	6.98	1.8380	1429.6	6.92	1.8370	1429.6
850	7.40	1.8599	1455.0	7.33	1.8588	1455.0	7.27	1.8577	1454.9	7.20	1.8567	1454.9
900	7.69	1.8790	1480.5	7.62	1.8779	1480.5	7.55	1.8769	1480.4	7.48	1.8758	1480.4

	109 [334.1]			110 [334.8]			111 [335.5]			112 [336.1]		
Sat.	4.09	1.5973	1189.8	4.06	1.5965	1190.0	4.02	1.5957	1190.1	3.99	1.5950	1190.3
340	4.13	1.6014	1193.2	4.09	1.6002	1192.9	4.05	1.5990	1192.7	4.01	1.5977	1192.5
350	4.20	1.6085	1198.8	4.16	1.6073	1198.6	4.12	1.6060	1198.4	4.08	1.6048	1198.2
360	4.26	1.6154	1204.4	4.22	1.6142	1204.2	4.18	1.6129	1204.0	4.14	1.6117	1203.8
370	4.33	1.6221	1210.0	4.29	1.6209	1209.8	4.25	1.6197	1209.6	4.21	1.6185	1209.4
380	4.39	1.6287	1215.5	4.35	1.6275	1215.3	4.31	1.6263	1215.1	4.27	1.6252	1214.9
390	4.46	1.6351	1220.9	4.42	1.6339	1220.7	4.37	1.6327	1220.6	4.33	1.6316	1220.4
400	4.52	1.6414	1226.3	4.48	1.6403	1226.1	4.44	1.6391	1226.0	4.39	1.6379	1225.8
410	4.59	1.6476	1231.7	4.54	1.6465	1231.5	4.50	1.6453	1231.4	4.46	1.6442	1231.2
420	4.65	1.6537	1237.0	4.60	1.6526	1236.9	4.56	1.6514	1236.7	4.52	1.6503	1236.5
430	4.71	1.6597	1242.3	4.67	1.6586	1242.2	4.62	1.6574	1242.0	4.58	1.6563	1241.9
440	4.77	1.6656	1247.6	4.73	1.6645	1247.4	4.68	1.6633	1247.3	4.64	1.6622	1247.1
450	4.83	1.6714	1252.8	4.79	1.6703	1252.7	4.74	1.6691	1252.5	4.70	1.6680	1252.4
460	4.89	1.6771	1258.0	4.85	1.6760	1257.9	4.80	1.6748	1257.7	4.76	1.6737	1257.6
470	4.96	1.6827	1263.2	4.91	1.6816	1263.1	4.86	1.6805	1262.9	4.82	1.6794	1262.8
480	5.02	1.6882	1268.3	4.97	1.6871	1268.2	4.92	1.6860	1268.1	4.88	1.6849	1268.0
490	5.08	1.6936	1273.5	5.03	1.6925	1273.4	4.98	1.6914	1273.3	4.94	1.6903	1273.1
500	5.14	1.6990	1278.6	5.09	1.6979	1278.5	5.04	1.6968	1278.4	4.99	1.6957	1278.3
550	5.43	1.7248	1304.0	5.38	1.7237	1303.9	5.33	1.7226	1303.8	5.28	1.7216	1303.7
600	5.72	1.7492	1329.2	5.67	1.7481	1329.1	5.62	1.7470	1329.0	5.56	1.7460	1329.0
650	6.01	1.7723	1354.3	5.95	1.7712	1354.2	5.90	1.7702	1354.1	5.84	1.7691	1354.1
700	6.29	1.7943	1379.3	6.23	1.7933	1379.2	6.18	1.7923	1379.2	6.12	1.7912	1379.1
750	6.57	1.8155	1404.4	6.51	1.8145	1404.3	6.45	1.8135	1404.3	6.40	1.8125	1404.2
800	6.85	1.8359	1429.6	6.79	1.8349	1429.5	6.73	1.8339	1429.5	6.67	1.8329	1429.5
850	7.13	1.8557	1454.9	7.07	1.8546	1454.9	7.00	1.8536	1454.8	6.94	1.8526	1454.8
900	7.41	1.8748	1480.4	7.35	1.8738	1480.4	7.28	1.8727	1480.4	7.22	1.8717	1480.3

Pressure	113 [336.8]			114 [337.4]			115 [338.1]			116 [338.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.95	1.5943	1190.4	3.92	1.5935	1190.6	3.89	1.5928	1190.7	3.86	1.5921	1190.8
340	3.98	1.5965	1192.2	3.94	1.5953	1192.0	3.90	1.5941	1191.8	3.87	1.5929	1191.6
350	4.04	1.6036	1197.9	4.00	1.6024	1197.7	3.97	1.6012	1197.5	3.93	1.6000	1197.3
360	4.10	1.6105	1203.6	4.07	1.6094	1203.4	4.03	1.6082	1203.2	3.99	1.6070	1203.0
370	4.17	1.6173	1209.2	4.13	1.6162	1209.0	4.09	1.6150	1208.8	4.05	1.6138	1208.6
380	4.23	1.6240	1214.7	4.19	1.6228	1214.5	4.15	1.6217	1214.3	4.11	1.6205	1214.2
390	4.29	1.6305	1220.2	4.25	1.6293	1220.0	4.21	1.6282	1219.8	4.18	1.6270	1219.7
400	4.35	1.6368	1225.6	4.31	1.6357	1225.5	4.27	1.6346	1225.3	4.24	1.6334	1225.1
410	4.42	1.6431	1231.0	4.38	1.6419	1230.9	4.34	1.6408	1230.7	4.30	1.6397	1230.5
420	4.48	1.6492	1236.4	4.44	1.6481	1236.2	4.40	1.6470	1236.1	4.36	1.6459	1235.9
430	4.54	1.6552	1241.7	4.50	1.6541	1241.6	4.46	1.6530	1241.4	4.42	1.6519	1241.3
440	4.60	1.6611	1247.0	4.56	1.6600	1246.9	4.52	1.6589	1246.7	4.47	1.6578	1246.6
450	4.66	1.6669	1252.3	4.62	1.6658	1252.1	4.57	1.6647	1252.0	4.53	1.6636	1251.9
460	4.72	1.6726	1257.5	4.67	1.6715	1257.4	4.63	1.6704	1257.2	4.59	1.6694	1257.1
470	4.77	1.6783	1262.7	4.73	1.6772	1262.6	4.69	1.6761	1262.4	4.65	1.6750	1262.3
480	4.83	1.6838	1267.9	4.79	1.6827	1267.8	4.75	1.6817	1267.6	4.70	1.6806	1267.5
490	4.89	1.6893	1273.0	4.85	1.6882	1272.9	4.80	1.6871	1272.8	4.76	1.6861	1272.7
500	4.95	1.6947	1278.2	4.91	1.6936	1278.1	4.86	1.6925	1278.0	4.82	1.6914	1277.9
550	5.23	1.7205	1303.7	5.19	1.7195	1303.6	5.14	1.7184	1303.5	5.10	1.7174	1303.4
600	5.51	1.7449	1328.9	5.47	1.7439	1328.8	5.42	1.7429	1328.8	5.37	1.7419	1328.7
650	5.79	1.7681	1354.0	5.74	1.7671	1354.0	5.69	1.7661	1353.9	5.64	1.7651	1353.8
700	6.07	1.7902	1379.1	6.01	1.7892	1379.0	5.96	1.7882	1379.0	5.91	1.7872	1378.9
750	6.34	1.8115	1404.2	6.28	1.8104	1404.2	6.23	1.8094	1404.1	6.17	1.8084	1404.1
800	6.61	1.8319	1429.4	6.55	1.8308	1429.4	6.49	1.8298	1429.4	6.44	1.8289	1429.3
850	6.88	1.8516	1454.8	6.82	1.8506	1454.8	6.76	1.8496	1454.8	6.70	1.8487	1454.7
900	7.14	1.8707	1480.3	7.08	1.8698	1480.3	7.02	1.8688	1480.3	6.96	1.8678	1480.2

	117 [339.4]			118 [340.0]			119 [340.6]			120 [341.3]		
Sat.	3.83	1.5914	1191.0	3.80	1.5907	1191.1	3.77	1.5900	1191.2	3.74	1.5893	1191.4
350	3.89	1.5989	1197.1	3.86	1.5977	1196.9	3.82	1.5966	1196.6	3.79	1.5955	1196.4
360	3.96	1.6059	1202.8	3.92	1.6047	1202.6	3.88	1.6036	1202.3	3.85	1.6025	1202.1
370	4.02	1.6127	1208.4	3.98	1.6116	1208.2	3.95	1.6105	1208.0	3.91	1.6094	1207.8
380	4.08	1.6194	1214.0	4.04	1.6183	1213.8	4.01	1.6172	1213.6	3.97	1.6161	1213.4
390	4.14	1.6259	1219.5	4.10	1.6248	1219.3	4.07	1.6237	1219.1	4.03	1.6226	1218.9
400	4.20	1.6323	1225.0	4.16	1.6312	1224.8	4.12	1.6301	1224.6	4.09	1.6291	1224.4
410	4.26	1.6386	1230.4	4.22	1.6375	1230.2	4.18	1.6364	1230.0	4.15	1.6354	1229.9
420	4.32	1.6448	1235.8	4.28	1.6437	1235.6	4.24	1.6426	1235.4	4.21	1.6415	1235.3
430	4.38	1.6508	1241.1	4.34	1.6497	1241.0	4.30	1.6486	1240.8	4.26	1.6476	1240.7
440	4.43	1.6567	1246.4	4.40	1.6556	1246.3	4.36	1.6546	1246.1	4.32	1.6536	1246.0
450	4.49	1.6626	1251.7	4.45	1.6615	1251.6	4.41	1.6605	1251.4	4.38	1.6594	1251.3
460	4.55	1.6683	1257.0	4.51	1.6672	1256.8	4.47	1.6662	1256.7	4.43	1.6652	1256.6
470	4.61	1.6740	1262.2	4.57	1.6729	1262.1	4.53	1.6719	1261.9	4.49	1.6709	1261.8
480	4.66	1.6796	1267.4	4.62	1.6785	1267.3	4.58	1.6775	1267.1	4.54	1.6765	1267.0
490	4.72	1.6850	1272.6	4.68	1.6840	1272.5	4.64	1.6830	1272.3	4.60	1.6820	1272.2
500	4.77	1.6904	1277.7	4.73	1.6894	1277.6	4.69	1.6884	1277.5	4.65	1.6874	1277.4
510	4.83	1.6957	1282.9	4.79	1.6947	1282.8	4.75	1.6937	1282.7	4.71	1.6927	1282.6
520	4.89	1.7009	1288.0	4.84	1.6999	1287.9	4.80	1.6989	1287.8	4.76	1.6980	1287.7
530	4.94	1.7061	1293.1	4.90	1.7051	1293.0	4.86	1.7041	1292.9	4.82	1.7032	1292.8
540	5.00	1.7113	1298.2	4.95	1.7103	1298.1	4.91	1.7093	1298.0	4.87	1.7083	1297.9
550	5.05	1.7164	1303.3	5.01	1.7154	1303.2	4.97	1.7144	1303.1	4.92	1.7134	1303.0
600	5.32	1.7409	1328.6	5.28	1.7399	1328.5	5.23	1.7389	1328.5	5.19	1.7379	1328.4
650	5.59	1.7641	1353.8	5.54	1.7631	1353.7	5.50	1.7622	1353.7	5.45	1.7612	1353.6
700	5.86	1.7862	1378.9	5.81	1.7852	1378.8	5.76	1.7843	1378.8	5.71	1.7833	1378.7
750	6.12	1.8075	1404.1	6.07	1.8065	1404.0	6.02	1.8055	1404.0	5.97	1.8046	1403.9

Pressure	121 [341.9]			122 [342.5]			123 [343.1]			124 [343.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.71	1.5886	1191.5	3.68	1.5879	1191.6	3.65	1.5872	1191.8	3.62	1.5865	1191.9
350	3.76	1.5943	1196.2	3.72	1.5932	1196.0	3.69	1.5921	1195.7	3.66	1.5910	1195.5
360	3.82	1.6013	1201.9	3.78	1.6002	1201.7	3.75	1.5991	1201.5	3.72	1.5980	1201.3
370	3.88	1.6082	1207.6	3.84	1.6071	1207.4	3.81	1.6060	1207.2	3.78	1.6049	1207.0
380	3.94	1.6150	1213.2	3.90	1.6139	1213.0	3.87	1.6128	1212.8	3.84	1.6117	1212.6
390	4.00	1.6216	1218.8	3.96	1.6205	1218.6	3.93	1.6194	1218.4	3.89	1.6183	1218.2
400	4.05	1.6280	1224.3	4.02	1.6269	1224.1	3.98	1.6258	1223.9	3.95	1.6248	1223.7
410	4.11	1.6343	1229.7	4.08	1.6332	1229.6	4.04	1.6322	1229.4	4.01	1.6311	1229.2
420	4.17	1.6405	1235.1	4.13	1.6394	1235.0	4.10	1.6384	1234.8	4.06	1.6373	1234.6
430	4.23	1.6466	1240.5	4.19	1.6455	1240.4	4.15	1.6445	1240.2	4.12	1.6434	1240.0
440	4.28	1.6525	1245.9	4.25	1.6515	1245.7	4.21	1.6505	1245.6	4.17	1.6494	1245.4
450	4.34	1.6584	1251.2	4.30	1.6574	1251.0	4.26	1.6563	1250.9	4.23	1.6553	1250.7
460	4.39	1.6642	1256.4	4.36	1.6631	1256.3	4.32	1.6621	1256.2	4.28	1.6611	1256.0
470	4.45	1.6699	1261.7	4.41	1.6688	1261.6	4.37	1.6678	1261.4	4.34	1.6668	1261.3
480	4.50	1.6754	1266.9	4.46	1.6744	1266.8	4.43	1.6734	1266.7	4.39	1.6724	1266.6
490	4.56	1.6809	1272.1	4.52	1.6799	1272.0	4.48	1.6789	1271.9	4.44	1.6779	1271.8
500	4.61	1.6864	1277.3	4.57	1.6854	1277.2	4.54	1.6844	1277.1	4.50	1.6834	1277.0
510	4.67	1.6918	1282.5	4.63	1.6908	1282.4	4.59	1.6898	1282.2	4.55	1.6988	1282.1
520	4.72	1.6971	1287.6	4.68	1.6961	1287.5	4.64	1.6951	1287.4	4.60	1.6941	1287.3
530	4.77	1.7023	1292.7	4.73	1.7013	1292.6	4.69	1.7003	1292.6	4.66	1.6993	1292.5
540	4.83	1.7074	1297.9	4.79	1.7064	1297.8	4.75	1.7054	1297.7	4.71	1.7044	1297.6
550	4.88	1.7124	1303.0	4.84	1.7114	1302.9	4.80	1.7105	1302.8	4.76	1.7095	1302.7
600	5.15	1.7370	1328.3	5.10	1.7360	1328.3	5.06	1.7350	1328.2	5.02	1.7341	1328.1
650	5.41	1.7602	1353.5	5.36	1.7593	1353.5	5.32	1.7583	1353.4	5.27	1.7574	1353.3
700	5.66	1.7824	1378.7	5.62	1.7815	1378.6	5.57	1.7805	1378.6	5.52	1.7796	1378.5
750	5.92	1.8037	1403.9	5.87	1.8027	1403.8	5.82	1.8018	1403.8	5.77	1.8009	1403.7

	125 [344.4]			126 [345.0]			127 [345.6]			128 [346.2]		
Sat.	3.59	1.5858	1192.0	3.57	1.5852	1192.1	3.54	1.5845	1192.3	3.51	1.5838	1192.4
350	3.63	1.5899	1195.3	3.60	1.5888	1195.1	3.57	1.5877	1194.9	3.54	1.5866	1194.6
360	3.69	1.5970	1201.1	3.66	1.5959	1200.9	3.62	1.5948	1200.7	3.59	1.5937	1200.4
370	3.75	1.6039	1206.8	3.71	1.6028	1206.6	3.68	1.6017	1206.4	3.65	1.6007	1206.2
380	3.80	1.6106	1212.4	3.77	1.6096	1212.2	3.74	1.6085	1212.0	3.71	1.6075	1211.9
390	3.86	1.6172	1218.0	3.83	1.6162	1217.8	3.80	1.6151	1217.6	3.77	1.6141	1217.5
400	3.92	1.6237	1223.6	3.88	1.6227	1223.4	3.85	1.6216	1223.2	3.82	1.6206	1223.0
410	3.97	1.6301	1229.1	3.94	1.6291	1228.9	3.91	1.6281	1228.7	3.88	1.6271	1228.5
420	4.03	1.6363	1234.5	4.00	1.6353	1234.3	3.96	1.6343	1234.2	3.93	1.6333	1234.0
430	4.08	1.6424	1239.9	4.05	1.6414	1239.7	4.02	1.6404	1239.6	3.98	1.6394	1239.4
440	4.14	1.6484	1245.3	4.10	1.6474	1245.1	4.07	1.6464	1245.0	4.04	1.6454	1244.8
450	4.19	1.6543	1250.6	4.16	1.6533	1250.5	4.12	1.6523	1250.3	4.09	1.6513	1250.2
460	4.25	1.6601	1255.9	4.21	1.6591	1255.8	4.18	1.6581	1255.6	4.14	1.6572	1255.5
470	4.30	1.6658	1261.2	4.27	1.6648	1261.1	4.23	1.6639	1260.9	4.20	1.6629	1260.8
480	4.35	1.6714	1266.4	4.32	1.6704	1266.3	4.28	1.6695	1266.2	4.25	1.6685	1266.1
490	4.41	1.6770	1271.7	4.37	1.6760	1271.5	4.34	1.6750	1271.4	4.30	1.6740	1271.3
500	4.46	1.6824	1276.9	4.42	1.6814	1276.7	4.39	1.6805	1276.6	4.35	1.6795	1276.5
510	4.51	1.6878	1282.0	4.48	1.6868	1281.9	4.44	1.6859	1281.8	4.40	1.6849	1281.7
520	4.56	1.6931	1287.2	4.53	1.6921	1287.1	4.49	1.6912	1287.0	4.46	1.6902	1286.9
530	4.62	1.6983	1292.4	4.58	1.6973	1292.3	4.54	1.6964	1292.2	4.51	1.6955	1292.1
540	4.67	1.7034	1297.5	4.63	1.7025	1297.4	4.59	1.7015	1297.3	4.56	1.7006	1297.2
550	4.72	1.7085	1302.6	4.68	1.7076	1302.5	4.65	1.7066	1302.4	4.61	1.7057	1302.3
600	4.98	1.7332	1328.0	4.94	1.7322	1328.0	4.90	1.7312	1327.9	4.86	1.7303	1327.8
650	5.23	1.7565	1353.3	5.19	1.7555	1353.2	5.15	1.7546	1353.2	5.11	1.7537	1353.1
700	5.48	1.7787	1378.5	5.44	1.7778	1378.4	5.39	1.7769	1378.4	5.35	1.7760	1378.3
750	5.73	1.8000	1403.7	5.68	1.7991	1403.7	5.64	1.7982	1403.6	5.59	1.7973	1403.6

Pressure	113 [336.8]			114 [337.4]			115 [338.1]			116 [338.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.95	1.5943	1190.4	3.92	1.5935	1190.6	3.89	1.5928	1190.7	3.86	1.5921	1190.8
340	3.98	1.5965	1192.2	3.94	1.5953	1192.0	3.90	1.5941	1191.8	3.87	1.5929	1191.6
350	4.04	1.6036	1197.9	4.00	1.6024	1197.7	3.97	1.6012	1197.5	3.93	1.6000	1197.3
360	4.10	1.6105	1203.6	4.07	1.6094	1203.4	4.03	1.6082	1203.2	3.99	1.6070	1203.0
370	4.17	1.6173	1209.2	4.13	1.6162	1209.0	4.09	1.6150	1208.8	4.05	1.6138	1208.6
380	4.23	1.6240	1214.7	4.19	1.6228	1214.5	4.15	1.6217	1214.3	4.11	1.6205	1214.2
390	4.29	1.6305	1220.2	4.25	1.6293	1220.0	4.21	1.6282	1219.8	4.18	1.6270	1219.7
400	4.35	1.6368	1225.6	4.31	1.6357	1225.5	4.27	1.6346	1225.3	4.24	1.6334	1225.1
410	4.42	1.6431	1231.0	4.38	1.6419	1230.9	4.34	1.6408	1230.7	4.30	1.6397	1230.5
420	4.48	1.6492	1236.4	4.44	1.6481	1236.2	4.40	1.6470	1236.1	4.36	1.6459	1235.9
430	4.54	1.6552	1241.7	4.50	1.6541	1241.6	4.46	1.6530	1241.4	4.42	1.6519	1241.3
440	4.60	1.6611	1247.0	4.56	1.6600	1246.9	4.52	1.6589	1246.7	4.47	1.6578	1246.6
450	4.66	1.6669	1252.3	4.62	1.6658	1252.1	4.57	1.6647	1252.0	4.53	1.6636	1251.9
460	4.72	1.6726	1257.5	4.67	1.6715	1257.4	4.63	1.6704	1257.2	4.59	1.6694	1257.1
470	4.77	1.6783	1262.7	4.73	1.6772	1262.6	4.69	1.6761	1262.4	4.65	1.6750	1262.3
480	4.83	1.6838	1267.9	4.79	1.6827	1267.8	4.75	1.6817	1267.6	4.70	1.6806	1267.5
490	4.89	1.6893	1273.0	4.85	1.6882	1272.9	4.80	1.6871	1272.8	4.76	1.6861	1272.7
500	4.95	1.6947	1278.2	4.91	1.6936	1278.1	4.86	1.6925	1278.0	4.82	1.6914	1277.9
550	5.23	1.7205	1303.7	5.19	1.7195	1303.6	5.14	1.7184	1303.5	5.10	1.7174	1303.4
600	5.51	1.7449	1328.9	5.47	1.7439	1328.8	5.42	1.7429	1328.8	5.37	1.7419	1328.7
650	5.79	1.7681	1354.0	5.74	1.7671	1354.0	5.69	1.7661	1353.9	5.64	1.7651	1353.8
700	6.07	1.7902	1379.1	6.01	1.7892	1379.0	5.96	1.7882	1379.0	5.91	1.7872	1378.9
750	6.34	1.8115	1404.2	6.28	1.8104	1404.2	6.23	1.8094	1404.1	6.17	1.8084	1404.1
800	6.61	1.8319	1429.4	6.55	1.8308	1429.4	6.49	1.8298	1429.4	6.44	1.8289	1429.3
850	6.88	1.8516	1454.8	6.82	1.8506	1454.8	6.76	1.8496	1454.8	6.70	1.8487	1454.7
900	7.14	1.8707	1480.3	7.08	1.8698	1480.3	7.02	1.8688	1480.3	6.96	1.8678	1480.2

	117 [339.4]			118 [340.0]			119 [340.6]			120 [341.3]		
Sat.	3.83	1.5914	1191.0	3.80	1.5907	1191.1	3.77	1.5900	1191.2	3.74	1.5893	1191.4
350	3.89	1.5989	1197.1	3.86	1.5977	1196.9	3.82	1.5966	1196.6	3.79	1.5955	1196.4
360	3.96	1.6059	1202.8	3.92	1.6047	1202.6	3.88	1.6036	1202.3	3.85	1.6025	1202.1
370	4.02	1.6127	1208.4	3.98	1.6116	1208.2	3.95	1.6105	1208.0	3.91	1.6094	1207.8
380	4.08	1.6194	1214.0	4.04	1.6183	1213.8	4.01	1.6172	1213.6	3.97	1.6161	1213.4
390	4.14	1.6259	1219.5	4.10	1.6248	1219.3	4.07	1.6237	1219.1	4.03	1.6226	1218.9
400	4.20	1.6323	1225.0	4.16	1.6312	1224.8	4.12	1.6301	1224.6	4.09	1.6291	1224.4
410	4.26	1.6386	1230.4	4.22	1.6375	1230.2	4.18	1.6364	1230.0	4.15	1.6354	1229.9
420	4.32	1.6448	1235.8	4.28	1.6437	1235.6	4.24	1.6426	1235.4	4.21	1.6415	1235.3
430	4.38	1.6508	1241.1	4.34	1.6497	1241.0	4.30	1.6486	1240.8	4.26	1.6476	1240.7
440	4.43	1.6567	1246.4	4.40	1.6556	1246.3	4.36	1.6546	1246.1	4.32	1.6536	1246.0
450	4.49	1.6626	1251.7	4.45	1.6615	1251.6	4.41	1.6605	1251.4	4.38	1.6594	1251.3
460	4.55	1.6683	1257.0	4.51	1.6672	1256.8	4.47	1.6662	1256.7	4.43	1.6652	1256.6
470	4.61	1.6740	1262.2	4.57	1.6729	1262.1	4.53	1.6719	1261.9	4.49	1.6709	1261.8
480	4.66	1.6796	1267.4	4.62	1.6785	1267.3	4.58	1.6775	1267.1	4.54	1.6765	1267.0
490	4.72	1.6850	1272.6	4.68	1.6840	1272.5	4.64	1.6830	1272.3	4.60	1.6820	1272.2
500	4.77	1.6904	1277.7	4.73	1.6894	1277.6	4.69	1.6884	1277.5	4.65	1.6874	1277.4
510	4.83	1.6957	1282.9	4.79	1.6947	1282.8	4.75	1.6937	1282.7	4.71	1.6927	1282.6
520	4.89	1.7009	1288.0	4.84	1.6999	1287.9	4.80	1.6989	1287.8	4.76	1.6980	1287.7
530	4.94	1.7061	1293.1	4.90	1.7051	1293.0	4.86	1.7041	1292.9	4.82	1.7032	1292.8
540	5.00	1.7113	1298.2	4.95	1.7103	1298.1	4.91	1.7093	1298.0	4.87	1.7083	1297.9
550	5.05	1.7164	1303.3	5.01	1.7154	1303.2	4.97	1.7144	1303.1	4.92	1.7134	1303.0
600	5.32	1.7409	1328.6	5.28	1.7399	1328.5	5.23	1.7389	1328.5	5.19	1.7379	1328.4
650	5.59	1.7641	1353.8	5.54	1.7631	1353.7	5.50	1.7622	1353.7	5.45	1.7612	1353.6
700	5.86	1.7862	1378.9	5.81	1.7852	1378.8	5.76	1.7843	1378.8	5.71	1.7833	1378.7
750	6.12	1.8075	1404.1	6.07	1.8065	1404.0	6.02	1.8055	1404.0	5.97	1.8046	1403.9

Pressure	121 [341.9]			122 [342.5]			123 [343.1]			124 [343.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.71	1.5886	1191.5	3.68	1.5879	1191.6	3.65	1.5872	1191.8	3.62	1.5865	1191.9
350	3.76	1.5943	1196.2	3.72	1.5932	1196.0	3.69	1.5921	1195.7	3.66	1.5910	1195.5
360	3.82	1.6013	1201.9	3.78	1.6002	1201.7	3.75	1.5991	1201.5	3.72	1.5980	1201.3
370	3.88	1.6082	1207.6	3.84	1.6071	1207.4	3.81	1.6060	1207.2	3.78	1.6049	1207.0
380	3.94	1.6150	1213.2	3.90	1.6139	1213.0	3.87	1.6128	1212.8	3.84	1.6117	1212.6
390	4.00	1.6216	1218.8	3.96	1.6205	1218.6	3.93	1.6194	1218.4	3.89	1.6183	1218.2
400	4.05	1.6280	1224.3	4.02	1.6269	1224.1	3.98	1.6258	1223.9	3.95	1.6248	1223.7
410	4.11	1.6343	1229.7	4.08	1.6332	1229.6	4.04	1.6322	1229.4	4.01	1.6311	1229.2
420	4.17	1.6405	1235.1	4.13	1.6394	1235.0	4.10	1.6384	1234.8	4.06	1.6373	1234.6
430	4.23	1.6466	1240.5	4.19	1.6455	1240.4	4.15	1.6445	1240.2	4.12	1.6434	1240.0
440	4.28	1.6525	1245.9	4.25	1.6515	1245.7	4.21	1.6505	1245.6	4.17	1.6494	1245.4
450	4.34	1.6584	1251.2	4.30	1.6574	1251.0	4.26	1.6563	1250.9	4.23	1.6553	1250.7
460	4.39	1.6642	1256.4	4.36	1.6631	1256.3	4.32	1.6621	1256.2	4.28	1.6611	1256.0
470	4.45	1.6699	1261.7	4.41	1.6688	1261.6	4.37	1.6678	1261.4	4.34	1.6668	1261.3
480	4.50	1.6754	1266.9	4.46	1.6744	1266.8	4.43	1.6734	1266.7	4.39	1.6724	1266.6
490	4.56	1.6809	1272.1	4.52	1.6799	1272.0	4.48	1.6789	1271.9	4.44	1.6779	1271.8
500	4.61	1.6864	1277.3	4.57	1.6854	1277.2	4.54	1.6844	1277.1	4.50	1.6834	1277.0
510	4.67	1.6918	1282.5	4.63	1.6908	1282.4	4.59	1.6898	1282.2	4.55	1.6988	1282.1
520	4.72	1.6971	1287.6	4.68	1.6961	1287.5	4.64	1.6951	1287.4	4.60	1.6941	1287.3
530	4.77	1.7023	1292.7	4.73	1.7013	1292.6	4.69	1.7003	1292.6	4.66	1.6993	1292.5
540	4.83	1.7074	1297.9	4.79	1.7064	1297.8	4.75	1.7054	1297.7	4.71	1.7044	1297.6
550	4.88	1.7124	1303.0	4.84	1.7114	1302.9	4.80	1.7105	1302.8	4.76	1.7095	1302.7
600	5.15	1.7370	1328.3	5.10	1.7360	1328.3	5.06	1.7350	1328.2	5.02	1.7341	1328.1
650	5.41	1.7602	1353.5	5.36	1.7593	1353.5	5.32	1.7583	1353.4	5.27	1.7574	1353.3
700	5.66	1.7824	1378.7	5.62	1.7815	1378.6	5.57	1.7805	1378.6	5.52	1.7796	1378.5
750	5.92	1.8037	1403.9	5.87	1.8027	1403.8	5.82	1.8018	1403.8	5.77	1.8009	1403.7

	125 [344.4]			126 [345.0]			127 [345.6]			128 [346.2]		
Sat.	3.59	1.5858	1192.0	3.57	1.5852	1192.1	3.54	1.5845	1192.3	3.51	1.5838	1192.4
350	3.63	1.5899	1195.3	3.60	1.5888	1195.1	3.57	1.5877	1194.9	3.54	1.5866	1194.6
360	3.69	1.5970	1201.1	3.66	1.5959	1200.9	3.62	1.5948	1200.7	3.59	1.5937	1200.4
370	3.75	1.6039	1206.8	3.71	1.6028	1206.6	3.68	1.6017	1206.4	3.65	1.6007	1206.2
380	3.80	1.6106	1212.4	3.77	1.6096	1212.2	3.74	1.6085	1212.0	3.71	1.6075	1211.9
390	3.86	1.6172	1218.0	3.83	1.6162	1217.8	3.80	1.6151	1217.6	3.77	1.6141	1217.5
400	3.92	1.6237	1223.6	3.88	1.6227	1223.4	3.85	1.6216	1223.2	3.82	1.6206	1223.0
410	3.97	1.6301	1229.1	3.94	1.6291	1228.9	3.91	1.6281	1228.7	3.88	1.6271	1228.5
420	4.03	1.6363	1234.5	4.00	1.6353	1234.3	3.96	1.6343	1234.2	3.93	1.6333	1234.0
430	4.08	1.6424	1239.9	4.05	1.6414	1239.7	4.02	1.6404	1239.6	3.98	1.6394	1239.4
440	4.14	1.6484	1245.3	4.10	1.6474	1245.1	4.07	1.6464	1245.0	4.04	1.6454	1244.8
450	4.19	1.6543	1250.6	4.16	1.6533	1250.5	4.12	1.6523	1250.3	4.09	1.6513	1250.2
460	4.25	1.6601	1255.9	4.21	1.6591	1255.8	4.18	1.6581	1255.6	4.14	1.6572	1255.5
470	4.30	1.6658	1261.2	4.27	1.6648	1261.1	4.23	1.6639	1260.9	4.20	1.6629	1260.8
480	4.35	1.6714	1266.4	4.32	1.6704	1266.3	4.28	1.6695	1266.2	4.25	1.6685	1266.1
490	4.41	1.6770	1271.7	4.37	1.6760	1271.5	4.34	1.6750	1271.4	4.30	1.6740	1271.3
500	4.46	1.6824	1276.9	4.42	1.6814	1276.7	4.39	1.6805	1276.6	4.35	1.6795	1276.5
510	4.51	1.6878	1282.0	4.48	1.6868	1281.9	4.44	1.6859	1281.8	4.40	1.6849	1281.7
520	4.56	1.6931	1287.2	4.53	1.6921	1287.1	4.49	1.6912	1287.0	4.46	1.6902	1286.9
530	4.62	1.6983	1292.4	4.58	1.6973	1292.3	4.54	1.6964	1292.2	4.51	1.6955	1292.1
540	4.67	1.7034	1297.5	4.63	1.7025	1297.4	4.59	1.7015	1297.3	4.56	1.7006	1297.2
550	4.72	1.7085	1302.6	4.68	1.7076	1302.5	4.65	1.7066	1302.4	4.61	1.7057	1302.3
600	4.98	1.7332	1328.0	4.94	1.7322	1328.0	4.90	1.7312	1327.9	4.86	1.7303	1327.8
650	5.23	1.7565	1353.3	5.19	1.7555	1353.2	5.15	1.7546	1353.2	5.11	1.7537	1353.1
700	5.48	1.7787	1378.5	5.44	1.7778	1378.4	5.39	1.7769	1378.4	5.35	1.7760	1378.3
750	5.73	1.8000	1403.7	5.68	1.7991	1403.7	5.64	1.7982	1403.6	5.59	1.7973	1403.6

Pressure	129 [346.8]			130 [347.4]			131 [347.9]			132 [348.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.49	1.5832	1192.5	3.46	1.5825	1192.6	3.44	1.5819	1192.7	3.41	1.5812	1192.9
350	3.51	1.5855	1194.4	3.48	1.5844	1194.2	3.45	1.5833	1194.0	3.42	1.5823	1193.7
360	3.56	1.5926	1200.2	3.54	1.5916	1200.0	3.51	1.5905	1199.8	3.48	1.5895	1199.6
370	3.62	1.5996	1206.0	3.59	1.5986	1205.8	3.56	1.5975	1205.6	3.53	1.5965	1205.4
380	3.68	1.6064	1211.7	3.65	1.6054	1211.5	3.62	1.6043	1211.3	3.59	1.6033	1211.1
390	3.73	1.6131	1217.3	3.70	1.6121	1217.1	3.67	1.6110	1216.9	3.64	1.6100	1216.7
400	3.79	1.6196	1222.9	3.76	1.6186	1222.7	3.73	1.6176	1222.5	3.70	1.6166	1222.3
410	3.84	1.6260	1228.4	3.81	1.6250	1228.2	3.78	1.6240	1228.0	3.75	1.6230	1227.9
420	3.90	1.6323	1233.9	3.87	1.6313	1233.7	3.84	1.6303	1233.5	3.81	1.6293	1233.4
430	3.95	1.6384	1239.3	3.92	1.6374	1239.1	3.89	1.6364	1239.0	3.86	1.6354	1238.8
440	4.00	1.6444	1244.7	3.97	1.6434	1244.5	3.94	1.6425	1244.4	3.91	1.6415	1244.2
450	4.06	1.6503	1250.1	4.03	1.6494	1249.9	3.99	1.6484	1249.8	3.96	1.6474	1249.6
460	4.11	1.6562	1255.4	4.08	1.6552	1255.2	4.05	1.6542	1255.1	4.01	1.6533	1255.0
470	4.16	1.6619	1260.7	4.13	1.6610	1260.5	4.10	1.6600	1260.4	4.07	1.6590	1260.3
480	4.21	1.6675	1265.9	4.18	1.6666	1265.8	4.15	1.6656	1265.7	4.12	1.6647	1265.6
490	4.27	1.6731	1271.2	4.23	1.6721	1271.1	4.20	1.6712	1271.0	4.17	1.6703	1270.9
500	4.32	1.6786	1276.4	4.28	1.6776	1276.3	4.25	1.6767	1276.2	4.22	1.6757	1276.1
510	4.37	1.6840	1281.6	4.34	1.6830	1281.5	4.30	1.6821	1281.4	4.27	1.6811	1281.3
520	4.42	1.6893	1286.8	4.39	1.6883	1286.7	4.35	1.6874	1286.6	4.32	1.6865	1286.5
530	4.47	1.6945	1292.0	4.44	1.6936	1291.9	4.40	1.6927	1291.8	4.37	1.6917	1291.7
540	4.52	1.6997	1297.1	4.49	1.6987	1297.0	4.45	1.6978	1296.9	4.42	1.6969	1296.8
550	4.57	1.7048	1302.2	4.54	1.7039	1302.1	4.50	1.7029	1302.1	4.47	1.7020	1302.0
600	4.82	1.7294	1327.7	4.78	1.7285	1327.7	4.75	1.7276	1327.6	4.71	1.7267	1327.5
650	5.07	1.7528	1353.0	5.03	1.7519	1353.0	4.99	1.7510	1352.9	4.95	1.7501	1352.9
700	5.31	1.7751	1378.3	5.27	1.7742	1378.2	5.23	1.7733	1378.2	5.19	1.7724	1378.1
750	5.55	1.7964	1403.5	5.51	1.7955	1403.5	5.46	1.7946	1403.5	5.42	1.7938	1403.4

	133 [349.1]			134 [349.7]			135 [350.3]			136 [350.8]		
Sat.	3.39	1.5806	1193.0	3.36	1.5800	1193.1	3.34	1.5793	1193.2	3.32	1.5787	1193.3
360	3.45	1.5884	1199.4	3.42	1.5874	1199.2	3.39	1.5863	1198.9	3.37	1.5853	1198.7
370	3.51	1.5954	1205.2	3.48	1.5944	1205.0	3.45	1.5934	1204.8	3.42	1.5924	1204.5
380	3.56	1.6023	1210.9	3.53	1.6013	1210.7	3.50	1.6003	1210.5	3.48	1.5993	1210.3
390	3.62	1.6090	1216.6	3.59	1.6080	1216.4	3.56	1.6070	1216.2	3.53	1.6060	1216.0
400	3.67	1.6156	1222.2	3.64	1.6146	1222.0	3.61	1.6136	1221.8	3.58	1.6126	1221.6
410	3.72	1.6220	1227.7	3.69	1.6210	1227.5	3.66	1.6200	1227.4	3.64	1.6190	1227.2
420	3.78	1.6283	1233.2	3.75	1.6273	1233.0	3.72	1.6263	1232.9	3.69	1.6254	1232.7
430	3.83	1.6345	1238.7	3.80	1.6335	1238.5	3.77	1.6325	1238.4	3.74	1.6316	1238.2
440	3.88	1.6405	1244.1	3.85	1.6396	1244.0	3.82	1.6386	1243.8	3.79	1.6377	1243.7
450	3.93	1.6465	1249.5	3.90	1.6455	1249.4	3.87	1.6446	1249.2	3.84	1.6436	1249.1
460	3.98	1.6524	1254.8	3.95	1.6514	1254.7	3.92	1.6505	1254.6	3.89	1.6495	1254.4
470	4.03	1.6581	1260.2	4.00	1.6571	1260.0	3.97	1.6562	1259.9	3.94	1.6553	1259.8
480	4.08	1.6638	1265.5	4.05	1.6628	1265.3	4.02	1.6619	1265.2	3.99	1.6610	1265.1
490	4.13	1.6693	1270.7	4.10	1.6684	1270.6	4.07	1.6675	1270.5	4.04	1.6665	1270.4
500	4.18	1.6748	1276.0	4.15	1.6739	1275.9	4.12	1.6730	1275.7	4.09	1.6721	1275.6
510	4.23	1.6802	1281.2	4.20	1.6793	1281.1	4.17	1.6784	1280.9	4.14	1.6775	1280.8
520	4.28	1.6856	1286.4	4.25	1.6846	1286.3	4.22	1.6837	1286.2	4.19	1.6828	1286.1
530	4.33	1.6908	1291.6	4.30	1.6899	1291.5	4.27	1.6890	1291.4	4.24	1.6881	1291.3
540	4.38	1.6960	1296.7	4.35	1.6951	1296.6	4.32	1.6942	1296.5	4.28	1.6933	1296.4
550	4.43	1.7011	1301.9	4.40	1.7002	1301.8	4.37	1.6993	1301.7	4.33	1.6984	1301.6
600	4.67	1.7259	1327.4	4.64	1.7250	1327.4	4.60	1.7241	1327.3	4.57	1.7233	1327.2
650	4.91	1.7493	1352.8	4.88	1.7484	1352.7	4.84	1.7475	1352.7	4.80	1.7467	1352.6
700	5.15	1.7715	1378.1	5.11	1.7707	1378.0	5.07	1.7698	1378.0	5.03	1.7690	1377.9
750	5.38	1.7929	1403.4	5.34	1.7921	1403.3	5.30	1.7912	1403.3	5.26	1.7904	1403.2
800	5.61	1.8134	1428.7	5.57	1.8126	1428.7	5.53	1.8117	1428.7	5.49	1.8109	1428.6

Pressure	137 [351.4]			138 [352.0]			139 [352.5]			140 [353.1]		
Temp ° F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.29	1.5781	1193.4	3.27	1.5775	1193.5	3.25	1.5769	1193.6	3.23	1.5762	1193.7
360	3.34	1.5843	1198.5	3.31	1.5833	1198.3	3.29	1.5823	1198.1	3.26	1.5813	1197.9
370	3.40	1.5914	1204.3	3.37	1.5904	1204.1	3.34	1.5894	1203.9	3.32	1.5884	1203.7
380	3.45	1.5983	1210.1	3.42	1.5973	1209.9	3.40	1.5963	1209.7	3.37	1.5953	1209.5
390	3.50	1.6050	1215.8	3.48	1.6040	1215.6	3.45	1.6031	1215.4	3.42	1.6021	1215.2
400	3.56	1.6116	1221.4	3.53	1.6106	1221.3	3.50	1.6097	1221.1	3.48	1.6087	1220.9
410	3.61	1.6181	1227.0	3.58	1.6171	1226.9	3.55	1.6162	1226.7	3.53	1.6152	1226.5
420	3.66	1.6244	1232.6	3.63	1.6235	1232.4	3.60	1.6225	1232.2	3.58	1.6216	1232.1
430	3.71	1.6306	1238.1	3.68	1.6297	1237.9	3.65	1.6287	1237.7	3.63	1.6278	1237.6
440	3.76	1.6367	1243.5	3.73	1.6358	1243.4	3.71	1.6348	1243.2	3.68	1.6339	1243.1
450	3.81	1.6427	1248.9	3.78	1.6418	1248.8	3.76	1.6409	1248.6	3.73	1.6400	1248.5
460	3.86	1.6486	1254.3	3.83	1.6477	1254.2	3.81	1.6467	1254.0	3.78	1.6458	1253.9
470	3.91	1.6544	1259.6	3.88	1.6535	1259.5	3.85	1.6526	1259.4	3.83	1.6517	1259.3
480	3.96	1.6600	1265.0	3.93	1.6591	1264.8	3.90	1.6582	1264.7	3.87	1.6573	1264.6
490	4.01	1.6656	1270.3	3.98	1.6647	1270.1	3.95	1.6638	1270.0	3.92	1.6629	1269.9
500	4.06	1.6711	1275.5	4.03	1.6702	1275.4	4.00	1.6693	1275.3	3.97	1.6685	1275.2
510	4.11	1.6766	1280.7	4.08	1.6757	1280.6	4.05	1.6748	1280.5	4.02	1.6739	1280.4
520	4.15	1.6819	1286.0	4.12	1.6810	1285.9	4.09	1.6801	1285.7	4.06	1.6793	1285.6
530	4.20	1.6872	1291.2	4.17	1.6863	1291.1	4.14	1.6854	1291.0	4.11	1.6846	1290.9
540	4.25	1.6924	1296.3	4.22	1.6915	1296.2	4.19	1.6906	1296.1	4.16	1.6898	1296.0
550	4.30	1.6975	1301.5	4.27	1.6966	1301.4	4.24	1.6958	1301.3	4.21	1.6949	1301.2
600	4.53	1.7224	1327.1	4.50	1.7215	1327.1	4.47	1.7206	1327.0	4.44	1.7198	1326.9
650	4.77	1.7458	1352.5	4.73	1.7449	1352.5	4.70	1.7441	1352.4	4.66	1.7433	1352.4
700	5.00	1.7681	1377.9	4.96	1.7673	1377.8	4.92	1.7664	1377.8	4.89	1.7656	1377.7
750	5.22	1.7895	1403.2	5.18	1.7887	1403.2	5.14	1.7878	1403.1	5.11	1.7870	1403.1
800	5.45	1.8101	1428.6	5.41	1.8092	1428.6	5.37	1.8084	1428.5	5.33	1.8076	1428.5

	141 [353.6]			142 [354.2]			143 [354.8]			144 [355.3]		
Sat.	3.20	1.5756	1193.8	3.18	1.5750	1193.9	3.16	1.5744	1194.0	3.14	1.5738	1194.1
360	3.24	1.5803	1197.6	3.21	1.5793	1197.4	3.19	1.5783	1197.2	3.17	1.5773	1197.0
370	3.29	1.5874	1203.5	3.27	1.5864	1203.3	3.24	1.5854	1203.1	3.22	1.5844	1202.9
380	3.34	1.5943	1209.3	3.32	1.5934	1209.1	3.29	1.5924	1208.9	3.27	1.5914	1208.7
390	3.40	1.6011	1215.1	3.37	1.6002	1214.9	3.35	1.5992	1214.7	3.32	1.5983	1214.5
400	3.45	1.6078	1220.7	3.42	1.6068	1220.6	3.40	1.6059	1220.4	3.37	1.6049	1220.2
410	3.50	1.6143	1226.3	3.47	1.6133	1226.2	3.45	1.6124	1226.0	3.42	1.6115	1225.8
420	3.55	1.6207	1231.9	3.52	1.6197	1231.7	3.50	1.6188	1231.6	3.47	1.6179	1231.4
430	3.60	1.6269	1237.4	3.57	1.6260	1237.3	3.55	1.6250	1237.1	3.52	1.6241	1237.0
440	3.65	1.6330	1242.9	3.62	1.6321	1242.8	3.60	1.6312	1242.6	3.57	1.6303	1242.5
450	3.70	1.6390	1248.4	3.67	1.6381	1248.2	3.65	1.6372	1248.1	3.62	1.6363	1247.9
460	3.75	1.6449	1253.8	3.72	1.6440	1253.6	3.69	1.6431	1253.5	3.67	1.6422	1253.3
470	3.80	1.6507	1259.1	3.77	1.6498	1259.0	3.74	1.6490	1258.9	3.72	1.6481	1258.7
480	3.84	1.6564	1264.5	3.82	1.6556	1264.3	3.79	1.6547	1264.2	3.76	1.6538	1264.1
490	3.89	1.6620	1269.8	3.86	1.6612	1269.7	3.84	1.6603	1269.5	3.81	1.6594	1269.4
500	3.94	1.6676	1275.1	3.91	1.6667	1274.9	3.88	1.6658	1274.8	3.85	1.6650	1274.7
510	3.99	1.6730	1280.3	3.96	1.6722	1280.2	3.93	1.6713	1280.1	3.90	1.6704	1280.0
520	4.03	1.6784	1285.5	4.01	1.6775	1285.4	3.98	1.6767	1285.3	3.95	1.6758	1285.2
530	4.08	1.6837	1290.8	4.05	1.6828	1290.7	4.02	1.6820	1290.6	4.00	1.6811	1290.5
540	4.13	1.6889	1296.0	4.10	1.6881	1295.9	4.07	1.6872	1295.8	4.04	1.6863	1295.7
550	4.18	1.6940	1301.1	4.15	1.6932	1301.0	4.12	1.6924	1300.9	4.09	1.6915	1300.9
600	4.40	1.7189	1326.8	4.37	1.7181	1326.8	4.34	1.7173	1326.7	4.31	1.7164	1326.6
650	4.63	1.7424	1352.3	4.60	1.7416	1352.2	4.56	1.7408	1352.2	4.53	1.7400	1352.1
700	4.85	1.7648	1377.7	4.82	1.7640	1377.6	4.78	1.7632	1377.6	4.75	1.7624	1377.5
750	5.07	1.7862	1403.0	5.04	1.7854	1403.0	5.00	1.7846	1402.9	4.97	1.7838	1402.9
800	5.29	1.8068	1428.4	5.25	1.8060	1428.4	5.22	1.8052	1428.4	5.18	1.8044	1428.3

Pressure	161 [364.1]			162 [364.6]			163 [365.1]			164 [365.6]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.82	1.5643	1195.8	2.81	1.5638	1195.8	2.79	1.5633	1195.9	2.77	1.5627	1196.0
370	2.85	1.5687	1199.3	2.83	1.5678	1199.1	2.81	1.5669	1198.9	2.79	1.5660	1198.7
380	2.90	1.5759	1205.3	2.88	1.5750	1205.1	2.86	1.5741	1204.9	2.84	1.5732	1204.7
390	2.95	1.5829	1211.3	2.93	1.5820	1211.1	2.91	1.5812	1210.9	2.89	1.5803	1210.7
400	2.99	1.5897	1217.1	2.97	1.5889	1216.9	2.95	1.5880	1216.7	2.93	1.5872	1216.6
410	3.04	1.5964	1222.9	3.02	1.5956	1222.7	3.00	1.5947	1222.5	2.98	1.5939	1222.4
420	3.08	1.6030	1228.6	3.06	1.6021	1228.4	3.04	1.6013	1228.3	3.02	1.6005	1228.1
430	3.13	1.6094	1234.3	3.11	1.6086	1234.1	3.09	1.6077	1234.0	3.07	1.6069	1233.8
440	3.17	1.6157	1239.9	3.15	1.6148	1239.8	3.13	1.6140	1239.6	3.11	1.6132	1239.4
450	3.22	1.6218	1245.5	3.20	1.6210	1245.3	3.18	1.6202	1245.2	3.16	1.6194	1245.0
460	3.26	1.6279	1251.0	3.24	1.6271	1250.9	3.22	1.6263	1250.7	3.20	1.6255	1250.6
470	3.31	1.6338	1256.5	3.28	1.6330	1256.4	3.26	1.6322	1256.2	3.24	1.6314	1256.1
480	3.35	1.6396	1261.9	3.33	1.6388	1261.8	3.31	1.6380	1261.7	3.29	1.6373	1261.6
490	3.39	1.6453	1267.4	3.37	1.6446	1267.2	3.35	1.6438	1267.1	3.33	1.6430	1267.0
500	3.43	1.6510	1272.7	3.41	1.6502	1272.6	3.39	1.6494	1272.5	3.37	1.6487	1272.4
510	3.48	1.6565	1278.1	3.45	1.6558	1278.0	3.43	1.6550	1277.9	3.41	1.6542	1277.8
520	3.52	1.6620	1283.4	3.50	1.6612	1283.3	3.48	1.6605	1283.2	3.45	1.6597	1283.1
530	3.56	1.6674	1288.7	3.54	1.6666	1288.6	3.52	1.6659	1288.5	3.49	1.6651	1288.4
540	3.60	1.6727	1294.0	3.58	1.6719	1293.9	3.56	1.6712	1293.8	3.53	1.6704	1293.7
550	3.64	1.6779	1299.3	3.62	1.6772	1299.2	3.60	1.6764	1299.1	3.57	1.6757	1299.0
600	3.85	1.7031	1325.3	3.82	1.7024	1325.2	3.80	1.7016	1325.1	3.77	1.7009	1325.1
650	4.05	1.7269	1351.0	4.02	1.7261	1351.0	4.00	1.7254	1350.9	3.97	1.7247	1350.9
700	4.24	1.7494	1376.6	4.21	1.7487	1376.6	4.19	1.7480	1376.5	4.16	1.7473	1376.5
750	4.44	1.7710	1402.2	4.41	1.7703	1402.1	4.38	1.7695	1402.1	4.35	1.7688	1402.0
800	4.63	1.7917	1427.7	4.60	1.7910	1427.7	4.57	1.7903	1427.6	4.54	1.7896	1427.6
850	4.82	1.8116	1453.3	4.79	1.8109	1453.3	4.76	1.8102	1453.3	4.73	1.8095	1453.2

	165 [366.1]			166 [366.5]			167 [367.0]			168 [367.5]		
Sat.	2.76	1.5622	1196.1	2.74	1.5617	1196.2	2.72	1.5612	1196.2	2.71	1.5607	1196.3
370	2.78	1.5651	1198.5	2.76	1.5643	1198.3	2.74	1.5634	1198.1	2.72	1.5625	1197.8
380	2.82	1.5723	1204.5	2.81	1.5715	1204.3	2.79	1.5706	1204.1	2.77	1.5698	1203.9
390	2.87	1.5794	1210.5	2.85	1.5786	1210.3	2.83	1.5777	1210.1	2.81	1.5769	1209.9
400	2.92	1.5863	1216.4	2.90	1.5855	1216.2	2.88	1.5846	1216.0	2.86	1.5838	1215.8
410	2.96	1.5931	1222.2	2.94	1.5922	1222.0	2.92	1.5914	1221.8	2.90	1.5906	1221.7
420	3.00	1.5997	1228.0	2.99	1.5988	1227.8	2.97	1.5980	1227.6	2.95	1.5972	1227.5
430	3.05	1.6061	1233.7	3.03	1.6053	1233.5	3.01	1.6045	1233.3	2.99	1.6037	1233.2
440	3.09	1.6124	1239.3	3.07	1.6116	1239.1	3.05	1.6108	1239.0	3.03	1.6100	1238.8
450	3.14	1.6186	1244.9	3.12	1.6178	1244.7	3.10	1.6170	1244.6	3.08	1.6162	1244.4
460	3.18	1.6247	1250.5	3.16	1.6239	1250.3	3.14	1.6231	1250.2	3.12	1.6223	1250.0
470	3.22	1.6306	1256.0	3.20	1.6298	1255.8	3.18	1.6291	1255.7	3.16	1.6283	1255.6
480	3.26	1.6365	1261.4	3.24	1.6357	1261.3	3.22	1.6349	1261.2	3.20	1.6342	1261.1
490	3.31	1.6422	1266.9	3.29	1.6414	1266.8	3.26	1.6407	1266.6	3.24	1.6399	1266.5
500	3.35	1.6479	1272.3	3.33	1.6471	1272.2	3.30	1.6464	1272.0	3.28	1.6456	1271.9
510	3.39	1.6535	1277.6	3.37	1.6527	1277.5	3.35	1.6519	1277.4	3.33	1.6512	1277.3
520	3.43	1.6589	1283.0	3.41	1.6582	1282.9	3.39	1.6574	1282.8	3.37	1.6567	1282.7
530	3.47	1.6643	1288.3	3.45	1.6636	1288.2	3.43	1.6628	1288.1	3.41	1.6621	1288.0
540	3.51	1.6697	1293.6	3.49	1.6689	1293.5	3.47	1.6682	1293.4	3.45	1.6674	1293.3
550	3.55	1.6749	1298.9	3.53	1.6742	1298.8	3.51	1.6734	1298.7	3.49	1.6727	1298.6
600	3.75	1.7002	1325.0	3.73	1.6994	1324.9	3.70	1.6987	1324.8	3.68	1.6980	1324.8
650	3.95	1.7240	1350.8	3.92	1.7232	1350.7	3.90	1.7225	1350.7	3.87	1.7218	1350.6
700	4.14	1.7466	1376.4	4.11	1.7458	1376.4	4.09	1.7451	1376.3	4.06	1.7444	1376.3
750	4.33	1.7682	1402.0	4.30	1.7674	1401.9	4.28	1.7667	1401.9	4.25	1.7660	1401.9
800	4.52	1.7889	1427.6	4.49	1.7882	1427.5	4.46	1.7875	1427.5	4.44	1.7868	1427.5
850	4.70	1.8088	1453.2	4.67	1.8081	1453.2	4.65	1.8075	1453.2	4.62	1.8068	1453.1

Pressure	169 [368.0]			170 [368.5]			171 [369.0]			172 [369.4]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.69	1.5602	1196.4	2.68	1.5597	1196.5	2.66	1.5592	1196.6	2.65	1.5587	1196.6
370	2.70	1.5617	1197.6	2.69	1.5608	1197.4	2.67	1.5599	1197.2	2.65	1.5591	1197.0
380	2.75	1.5689	1203.7	2.73	1.5681	1203.5	2.71	1.5672	1203.3	2.70	1.5664	1203.1
390	2.79	1.5760	1209.7	2.78	1.5752	1209.5	2.76	1.5744	1209.3	2.74	1.5735	1209.1
400	2.84	1.5830	1215.6	2.82	1.5821	1215.4	2.80	1.5813	1215.2	2.79	1.5805	1215.1
410	2.88	1.5898	1221.5	2.87	1.5889	1221.3	2.85	1.5881	1221.1	2.83	1.5873	1221.0
420	2.93	1.5964	1227.3	2.91	1.5956	1227.1	2.89	1.5948	1226.9	2.87	1.5940	1226.8
430	2.97	1.6029	1233.0	2.95	1.6021	1232.8	2.93	1.6013	1232.7	2.92	1.6005	1232.5
440	3.02	1.6092	1238.7	3.00	1.6084	1238.5	2.98	1.6076	1238.4	2.96	1.6068	1238.2
450	3.06	1.6154	1244.3	3.04	1.6146	1244.2	3.02	1.6139	1244.0	3.00	1.6131	1243.9
460	3.10	1.6215	1249.9	3.08	1.6207	1249.8	3.06	1.6200	1249.6	3.04	1.6192	1249.5
470	3.14	1.6275	1255.4	3.12	1.6267	1255.3	3.10	1.6260	1255.2	3.08	1.6252	1255.0
480	3.18	1.6334	1260.9	3.16	1.6326	1260.8	3.14	1.6318	1260.7	3.12	1.6311	1260.5
490	3.22	1.6392	1266.4	3.20	1.6384	1266.3	3.18	1.6376	1266.1	3.16	1.6369	1266.0
500	3.26	1.6448	1271.8	3.24	1.6441	1271.7	3.22	1.6433	1271.6	3.20	1.6426	1271.5
510	3.31	1.6504	1277.2	3.29	1.6497	1277.1	3.27	1.6489	1277.0	3.25	1.6482	1276.9
520	3.35	1.6559	1282.6	3.33	1.6552	1282.5	3.31	1.6544	1282.3	3.29	1.6537	1282.2
530	3.39	1.6613	1287.9	3.37	1.6606	1287.8	3.35	1.6599	1287.7	3.33	1.6591	1287.6
540	3.43	1.6667	1293.2	3.41	1.6660	1293.1	3.38	1.6652	1293.0	3.36	1.6645	1292.9
550	3.47	1.6720	1298.5	3.45	1.6712	1298.4	3.42	1.6705	1298.3	3.40	1.6698	1298.2
600	3.66	1.6973	1324.7	3.64	1.6966	1324.6	3.62	1.6958	1324.5	3.59	1.6951	1324.4
650	3.85	1.7211	1350.5	3.83	1.7204	1350.5	3.81	1.7197	1350.4	3.78	1.7190	1350.3
700	4.04	1.7437	1376.2	4.02	1.7431	1376.2	3.99	1.7424	1376.1	3.97	1.7417	1376.1
750	4.22	1.7653	1401.8	4.20	1.7647	1401.8	4.17	1.7640	1401.7	4.15	1.7633	1401.7
800	4.41	1.7861	1427.4	4.38	1.7854	1427.4	4.36	1.7848	1427.3	4.33	1.7841	1427.3
850	4.59	1.8061	1453.1	4.56	1.8054	1453.1	4.54	1.8048	1453.0	4.51	1.8041	1453.0

	173 [369.9]			174 [370.4]			175 [370.8]			176 [371.3]		
Sat.	2.63	1.5582	1196.7	2.62	1.5577	1196.8	2.61	1.5572	1196.9	2.59	1.5567	1196.9
380	2.68	1.5656	1202.9	2.66	1.5647	1202.7	2.65	1.5639	1202.5	2.63	1.5631	1202.3
390	2.73	1.5727	1208.9	2.71	1.5719	1208.7	2.69	1.5711	1208.5	2.67	1.5703	1208.3
400	2.77	1.5797	1214.9	2.75	1.5789	1214.7	2.74	1.5781	1214.5	2.72	1.5773	1214.3
410	2.81	1.5865	1220.8	2.79	1.5857	1220.6	2.78	1.5849	1220.4	2.76	1.5841	1220.2
420	2.86	1.5932	1226.6	2.84	1.5924	1226.4	2.82	1.5916	1226.3	2.80	1.5908	1226.1
430	2.90	1.5997	1232.4	2.88	1.5989	1232.2	2.86	1.5981	1232.0	2.85	1.5973	1231.9
440	2.94	1.6061	1238.1	2.92	1.6053	1237.9	2.91	1.6045	1237.7	2.89	1.6037	1237.6
450	2.98	1.6123	1243.7	2.96	1.6115	1243.6	2.95	1.6108	1243.4	2.93	1.6100	1243.3
460	3.02	1.6184	1249.3	3.00	1.6177	1249.2	2.99	1.6169	1249.0	2.97	1.6162	1248.9
470	3.06	1.6245	1254.9	3.05	1.6237	1254.8	3.03	1.6230	1254.6	3.01	1.6222	1254.5
480	3.11	1.6304	1260.4	3.09	1.6296	1260.3	3.07	1.6289	1260.1	3.05	1.6281	1260.0
490	3.15	1.6362	1265.9	3.13	1.6354	1265.8	3.11	1.6347	1265.6	3.09	1.6339	1265.5
500	3.19	1.6419	1271.3	3.17	1.6411	1271.2	3.15	1.6404	1271.1	3.13	1.6397	1271.0
510	3.23	1.6475	1276.7	3.21	1.6467	1276.6	3.19	1.6460	1276.5	3.17	1.6453	1276.4
520	3.27	1.6530	1282.1	3.25	1.6523	1282.0	3.23	1.6515	1281.9	3.21	1.6508	1281.8
530	3.31	1.6584	1287.5	3.29	1.6577	1287.4	3.27	1.6570	1287.3	3.25	1.6562	1287.2
540	3.34	1.6638	1292.8	3.32	1.6631	1292.7	3.30	1.6624	1292.6	3.28	1.6616	1292.5
550	3.38	1.6691	1298.1	3.36	1.6683	1298.0	3.34	1.6676	1297.9	3.32	1.6669	1297.8
600	3.57	1.6944	1324.4	3.55	1.6937	1324.3	3.53	1.6931	1324.2	3.51	1.6924	1324.1
650	3.76	1.7183	1350.3	3.74	1.7177	1350.2	3.72	1.7170	1350.1	3.70	1.7163	1350.1
700	3.94	1.7410	1376.0	3.92	1.7403	1375.9	3.90	1.7397	1375.9	3.88	1.7390	1375.8
750	4.13	1.7627	1401.6	4.10	1.7620	1401.6	4.08	1.7613	1401.5	4.06	1.7607	1401.5
800	4.31	1.7834	1427.3	4.28	1.7828	1427.2	4.26	1.7821	1427.2	4.23	1.7815	1427.1
850	4.48	1.8034	1453.0	4.46	1.8028	1452.9	4.43	1.8021	1452.9	4.41	1.8015	1452.9
900	4.66	1.8228	1478.8	4.63	1.8221	1478.8	4.61	1.8215	1478.7	4.59	1.8208	1478.7

Pressure	177 [371.8]			178 [372.2]			179 [372.7]			180 [373.1]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.58	1.5562	1197.0	2.56	1.5557	1197.1	2.55	1.5552	1197.2	2.54	1.5547	1197.2
380	2.62	1.5623	1202.1	2.60	1.5614	1201.9	2.58	1.5606	1201.7	2.57	1.5598	1201.4
390	2.66	1.5695	1208.1	2.64	1.5686	1207.9	2.62	1.5678	1207.8	2.61	1.5670	1207.6
400	2.70	1.5765	1214.1	2.68	1.5757	1213.9	2.67	1.5749	1213.8	2.65	1.5741	1213.6
410	2.74	1.5833	1220.1	2.73	1.5825	1219.9	2.71	1.5817	1219.7	2.70	1.5810	1219.5
420	2.79	1.5900	1225.9	2.77	1.5892	1225.8	2.75	1.5884	1225.6	2.74	1.5877	1225.4
430	2.83	1.5966	1231.7	2.81	1.5958	1231.5	2.79	1.5950	1231.4	2.78	1.5943	1231.2
440	2.87	1.6030	1237.4	2.85	1.6022	1237.3	2.84	1.6014	1237.1	2.82	1.6007	1237.0
450	2.91	1.6093	1243.1	2.89	1.6085	1243.0	2.88	1.6077	1242.8	2.86	1.6070	1242.7
460	2.95	1.6155	1248.8	2.93	1.6147	1248.6	2.92	1.6139	1248.5	2.90	1.6132	1248.3
470	2.99	1.6215	1254.4	2.97	1.6207	1254.2	2.96	1.6200	1254.1	2.94	1.6192	1253.9
480	3.03	1.6274	1259.9	3.01	1.6266	1259.8	3.00	1.6259	1259.6	2.98	1.6252	1259.5
490	3.07	1.6332	1265.4	3.05	1.6325	1265.3	3.04	1.6318	1265.1	3.02	1.6310	1265.0
500	3.11	1.6390	1270.9	3.09	1.6382	1270.7	3.07	1.6375	1270.6	3.06	1.6368	1270.5
510	3.15	1.6446	1276.3	3.13	1.6438	1276.2	3.11	1.6431	1276.1	3.10	1.6424	1275.9
520	3.19	1.6501	1281.7	3.17	1.6494	1281.6	3.15	1.6487	1281.5	3.13	1.6480	1281.4
530	3.23	1.6556	1287.1	3.21	1.6548	1287.0	3.19	1.6541	1286.9	3.17	1.6534	1286.8
540	3.27	1.6610	1292.4	3.25	1.6602	1292.3	3.23	1.6595	1292.2	3.21	1.6588	1292.1
550	3.30	1.6663	1297.7	3.29	1.6655	1297.6	3.27	1.6648	1297.5	3.25	1.6641	1297.4
600	3.49	1.6917	1324.1	3.47	1.6910	1324.0	3.45	1.6903	1323.9	3.43	1.6896	1323.8
650	3.67	1.7157	1350.0	3.65	1.7150	1349.9	3.63	1.7143	1349.9	3.61	1.7136	1349.8
700	3.85	1.7384	1375.8	3.83	1.7377	1375.7	3.81	1.7370	1375.7	3.79	1.7364	1375.6
750	4.03	1.7601	1401.5	4.01	1.7594	1401.4	3.99	1.7587	1401.4	3.96	1.7581	1401.3
800	4.21	1.7809	1427.1	4.18	1.7802	1427.1	4.16	1.7795	1427.0	4.14	1.7789	1427.0
850	4.38	1.8009	1452.8	4.36	1.8002	1452.8	4.33	1.7995	1452.8	4.31	1.7989	1452.7
900	4.66	1.8202	1478.7	4.63	1.8195	1478.6	4.51	1.8189	1478.6	4.49	1.8183	1478.6

	181 [373.6]			182 [374.0]			183 [374.5]			184 [374.9]		
Sat.	2.52	1.5542	1197.3	2.51	1.5538	1197.4	2.50	1.5533	1197.4	2.48	1.5528	1197.5
380	2.55	1.5590	1201.2	2.54	1.5582	1201.0	2.52	1.5574	1200.8	2.50	1.5566	1200.6
390	2.59	1.5662	1207.3	2.58	1.5654	1207.1	2.56	1.5646	1207.0	2.55	1.5639	1206.8
400	2.64	1.5733	1213.4	2.62	1.5725	1213.2	2.60	1.5717	1213.0	2.59	1.5710	1212.8
410	2.68	1.5802	1219.3	2.66	1.5794	1219.2	2.65	1.5786	1219.0	2.63	1.5779	1218.8
420	2.72	1.5869	1225.2	2.70	1.5861	1225.1	2.69	1.5854	1224.9	2.67	1.5846	1224.7
430	2.76	1.5935	1231.1	2.75	1.5927	1230.9	2.73	1.5920	1230.7	2.71	1.5912	1230.6
440	2.80	1.5999	1236.8	2.79	1.5992	1236.7	2.77	1.5984	1236.5	2.75	1.5977	1236.4
450	2.84	1.6063	1242.5	2.83	1.6055	1242.4	2.81	1.6048	1242.2	2.79	1.6040	1242.1
460	2.88	1.6125	1248.2	2.87	1.6117	1248.1	2.85	1.6110	1247.9	2.83	1.6102	1247.8
470	2.92	1.6185	1253.8	2.91	1.6178	1253.7	2.89	1.6171	1253.5	2.87	1.6163	1253.4
480	2.96	1.6245	1259.4	2.94	1.6237	1259.2	2.93	1.6230	1259.1	2.91	1.6223	1259.0
490	3.00	1.6303	1264.9	2.98	1.6296	1264.8	2.97	1.6289	1264.6	2.95	1.6282	1264.5
500	3.04	1.6361	1270.4	3.02	1.6353	1270.3	3.00	1.6346	1270.1	2.99	1.6339	1270.0
510	3.08	1.6417	1275.8	3.06	1.6410	1275.7	3.04	1.6403	1275.6	3.03	1.6396	1275.5
520	3.12	1.6473	1281.2	3.10	1.6466	1281.1	3.08	1.6459	1281.0	3.06	1.6452	1280.9
530	3.15	1.6527	1286.6	3.14	1.6520	1286.5	3.12	1.6513	1286.4	3.10	1.6507	1286.3
540	3.19	1.6581	1292.0	3.17	1.6574	1291.9	3.15	1.6567	1291.8	3.14	1.6561	1291.7
550	3.23	1.6634	1297.3	3.21	1.6627	1297.3	3.19	1.6621	1297.2	3.17	1.6614	1297.1
600	3.41	1.6890	1323.7	3.39	1.6883	1323.7	3.37	1.6876	1323.6	3.35	1.6870	1323.5
650	3.59	1.7130	1349.7	3.57	1.7123	1349.7	3.55	1.7116	1349.6	3.53	1.7110	1349.5
700	3.77	1.7357	1375.6	3.75	1.7351	1375.5	3.73	1.7344	1375.5	3.71	1.7337	1375.4
750	3.94	1.7574	1401.3	3.92	1.7568	1401.2	3.90	1.7561	1401.2	3.88	1.7555	1401.1
800	4.11	1.7782	1427.0	4.09	1.7776	1426.9	4.07	1.7770	1426.9	4.05	1.7764	1426.8
850	4.28	1.7983	1452.7	4.26	1.7976	1452.7	4.24	1.7970	1452.6	4.21	1.7964	1452.6
900	4.45	1.8176	1478.5	4.43	1.8170	1478.5	4.41	1.8164	1478.5	4.38	1.8158	1478.5

Pressure	185 [375.4]			186 [375.8]			187 [376.3]			188 [376.7]		
Temp ° F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.47	1.5523	1197.6	2.46	1.5519	1197.6	2.44	1.5514	1197.7	2.43	1.5509	1197.8
380	2.49	1.5558	1200.4	2.48	1.5550	1200.2	2.46	1.5542	1200.0	2.45	1.5534	1199.8
390	2.53	1.5631	1206.6	2.52	1.5623	1206.4	2.50	1.5615	1206.2	2.49	1.5607	1206.0
400	2.57	1.5702	1212.6	2.56	1.5694	1212.5	2.54	1.5686	1212.3	2.53	1.5679	1212.1
410	2.62	1.5771	1218.6	2.60	1.5763	1218.5	2.59	1.5756	1218.3	2.57	1.5748	1218.1
420	2.66	1.5839	1224.5	2.64	1.5831	1224.4	2.63	1.5824	1224.2	2.61	1.5816	1224.0
430	2.70	1.5905	1230.4	2.68	1.5897	1230.2	2.67	1.5890	1230.1	2.65	1.5883	1229.9
440	2.74	1.5970	1236.2	2.72	1.5962	1236.0	2.71	1.5955	1235.9	2.69	1.5948	1235.7
450	2.78	1.6033	1241.9	2.76	1.6026	1241.8	2.75	1.6019	1241.6	2.73	1.6011	1241.5
460	2.82	1.6095	1247.6	2.80	1.6088	1247.5	2.79	1.6081	1247.3	2.77	1.6074	1247.2
470	2.86	1.6156	1253.3	2.84	1.6149	1253.1	2.82	1.6142	1253.0	2.81	1.6135	1252.8
480	2.90	1.6216	1258.9	2.88	1.6209	1258.7	2.86	1.6202	1258.6	2.85	1.6195	1258.4
490	2.93	1.6275	1264.4	2.92	1.6268	1264.3	2.90	1.6261	1264.1	2.88	1.6254	1264.0
500	2.97	1.6332	1269.9	2.95	1.6325	1269.8	2.94	1.6318	1269.6	2.92	1.6311	1269.5
510	3.01	1.6389	1275.4	2.99	1.6382	1275.3	2.97	1.6375	1275.1	2.96	1.6368	1275.0
520	3.04	1.6445	1280.8	3.03	1.6438	1280.7	3.01	1.6431	1280.6	2.99	1.6424	1280.5
530	3.08	1.6500	1286.2	3.06	1.6493	1286.1	3.05	1.6486	1286.0	3.03	1.6479	1285.9
540	3.12	1.6554	1291.6	3.10	1.6547	1291.5	3.08	1.6540	1291.4	3.07	1.6534	1291.3
550	3.16	1.6607	1297.0	3.14	1.6600	1296.9	3.12	1.6594	1296.8	3.10	1.6587	1296.7
600	3.34	1.6863	1323.4	3.32	1.6857	1323.3	3.30	1.6850	1323.3	3.28	1.6843	1323.2
650	3.51	1.7104	1349.5	3.49	1.7097	1349.4	3.47	1.7091	1349.4	3.45	1.7084	1349.3
700	3.68	1.7331	1375.4	3.66	1.7325	1375.3	3.64	1.7318	1375.2	3.62	1.7312	1375.2
750	3.85	1.7549	1401.1	3.83	1.7543	1401.0	3.81	1.7536	1401.0	3.79	1.7530	1400.9
800	4.02	1.7757	1426.8	4.00	1.7751	1426.8	3.98	1.7745	1426.7	3.96	1.7739	1426.7
850	4.19	1.7958	1452.6	4.17	1.7952	1452.6	4.15	1.7946	1452.5	4.12	1.7939	1452.5
900	4.36	1.8152	1478.5	4.34	1.8146	1478.4	4.31	1.8139	1478.4	4.29	1.8133	1478.4

	189 [377.1]			190 [377.6]			191 [378.0]			192 [378.5]		
Sat.	2.42	1.5505	1197.8	2.41	1.5500	1197.9	2.39	1.5496	1197.9	2.38	1.5491	1198.0
380	2.43	1.5526	1199.6	2.42	1.5518	1199.4	2.40	1.5510	1199.2	2.39	1.5503	1198.9
390	2.47	1.5599	1205.8	2.46	1.5592	1205.6	2.45	1.5584	1205.4	2.43	1.5576	1205.2
400	2.52	1.5671	1211.9	2.50	1.5663	1211.7	2.49	1.5656	1211.5	2.47	1.5648	1211.3
410	2.56	1.5741	1217.9	2.54	1.5733	1217.7	2.53	1.5726	1217.5	2.51	1.5718	1217.4
420	2.60	1.5809	1223.9	2.58	1.5801	1223.7	2.57	1.5794	1223.5	2.55	1.5786	1223.4
430	2.64	1.5875	1229.8	2.62	1.5868	1229.6	2.61	1.5861	1229.4	2.59	1.5853	1229.3
440	2.68	1.5940	1235.6	2.66	1.5933	1235.4	2.65	1.5926	1235.3	2.63	1.5919	1235.1
450	2.72	1.6004	1241.3	2.70	1.5997	1241.2	2.68	1.5990	1241.0	2.67	1.5983	1240.9
460	2.75	1.6066	1247.0	2.74	1.6059	1246.9	2.72	1.6052	1246.7	2.71	1.6045	1246.6
470	2.79	1.6128	1252.7	2.78	1.6121	1252.6	2.76	1.6114	1252.4	2.75	1.6107	1252.3
480	2.83	1.6188	1258.3	2.81	1.6181	1258.2	2.80	1.6174	1258.0	2.78	1.6167	1257.9
490	2.87	1.6247	1263.9	2.85	1.6240	1263.8	2.83	1.6233	1263.6	2.82	1.6226	1263.5
500	2.90	1.6305	1269.4	2.89	1.6298	1269.3	2.87	1.6291	1269.2	2.86	1.6284	1269.1
510	2.94	1.6361	1274.9	2.93	1.6355	1274.8	2.91	1.6348	1274.7	2.89	1.6341	1274.6
520	2.98	1.6417	1280.4	2.96	1.6411	1280.3	2.95	1.6404	1280.1	2.93	1.6397	1280.0
530	3.01	1.6473	1285.8	3.00	1.6466	1285.7	2.98	1.6459	1285.6	2.97	1.6453	1285.5
540	3.05	1.6527	1291.2	3.03	1.6520	1291.1	3.02	1.6514	1291.0	3.00	1.6507	1290.9
550	3.09	1.6580	1296.6	3.07	1.6574	1296.5	3.05	1.6567	1296.4	3.04	1.6561	1296.3
600	3.26	1.6837	1323.1	3.25	1.6830	1323.0	3.23	1.6824	1322.9	3.21	1.6818	1322.9
650	3.44	1.7078	1349.2	3.42	1.7072	1349.1	3.40	1.7065	1349.1	3.38	1.7059	1349.0
700	3.61	1.7306	1375.1	3.59	1.7300	1375.1	3.57	1.7294	1375.0	3.55	1.7288	1375.0
750	3.77	1.7524	1400.9	3.75	1.7518	1400.9	3.73	1.7512	1400.8	3.71	1.7506	1400.8
800	3.94	1.7733	1426.7	3.92	1.7727	1426.6	3.90	1.7720	1426.6	3.88	1.7715	1426.5
850	4.10	1.7933	1452.5	4.08	1.7927	1452.4	4.06	1.7921	1452.4	4.04	1.7915	1452.4
900	4.27	1.8127	1478.3	4.25	1.8121	1478.3	4.22	1.8115	1478.3	4.20	1.8109	1478.3

Pressure	193 [378.9]			194 [379.3]			195 [379.7]			196 [380.2]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.37	1.5487	1198.1	2.36	1.5482	1198.1	2.35	1.5478	1198.2	2.34	1.5473	1198.2
390	2.42	1.5569	1205.0	2.40	1.5561	1204.8	2.39	1.5554	1204.6	2.38	1.5546	1204.4
400	2.46	1.5641	1211.1	2.44	1.5633	1210.9	2.43	1.5626	1210.7	2.42	1.5618	1210.5
410	2.50	1.5711	1217.2	2.48	1.5703	1217.0	2.47	1.5696	1216.8	2.46	1.5689	1216.6
420	2.54	1.5779	1223.2	2.52	1.5772	1223.0	2.51	1.5765	1222.8	2.50	1.5758	1222.6
430	2.58	1.5846	1229.1	2.56	1.5839	1228.9	2.55	1.5832	1228.7	2.54	1.5825	1228.6
440	2.62	1.5912	1234.9	2.60	1.5904	1234.8	2.59	1.5897	1234.6	2.57	1.5890	1234.5
450	2.66	1.5976	1240.7	2.64	1.5968	1240.6	2.63	1.5961	1240.4	2.61	1.5954	1240.3
460	2.69	1.6038	1246.5	2.68	1.6031	1246.3	2.66	1.6024	1246.2	2.65	1.6017	1246.0
470	2.73	1.6100	1252.2	2.72	1.6093	1252.0	2.70	1.6086	1251.9	2.69	1.6079	1251.7
480	2.77	1.6160	1257.8	2.75	1.6153	1257.7	2.74	1.6146	1257.5	2.72	1.6140	1257.4
490	2.80	1.6219	1263.4	2.79	1.6213	1263.3	2.77	1.6206	1263.1	2.76	1.6199	1263.0
500	2.84	1.6277	1268.9	2.83	1.6271	1268.8	2.81	1.6264	1268.7	2.80	1.6257	1268.6
510	2.88	1.6335	1274.4	2.86	1.6328	1274.3	2.85	1.6321	1274.2	2.83	1.6315	1274.1
520	2.91	1.6391	1279.9	2.90	1.6384	1279.8	2.88	1.6377	1279.7	2.87	1.6371	1279.6
530	2.95	1.6446	1285.4	2.93	1.6439	1285.3	2.92	1.6433	1285.2	2.90	1.6426	1285.1
540	2.99	1.6500	1290.8	2.97	1.6494	1290.7	2.95	1.6487	1290.6	2.94	1.6481	1290.5
550	3.02	1.6554	1296.2	3.01	1.6548	1296.1	2.99	1.6541	1296.0	2.97	1.6535	1295.9
560	3.05	1.6607	1301.6	3.04	1.6601	1301.5	3.02	1.6594	1301.4	3.00	1.6588	1301.3
570	3.09	1.6659	1306.9	3.08	1.6653	1306.8	3.06	1.6646	1306.7	3.04	1.6640	1306.6
580	3.12	1.6710	1312.2	3.11	1.6704	1312.1	3.09	1.6698	1312.0	3.07	1.6691	1311.9
590	3.16	1.6761	1317.5	3.15	1.6755	1317.4	3.13	1.6749	1317.3	3.11	1.6742	1317.2
600	3.19	1.6811	1322.8	3.18	1.6805	1322.7	3.16	1.6799	1322.6	3.14	1.6792	1322.5
650	3.36	1.7053	1349.0	3.35	1.7047	1348.9	3.33	1.7041	1348.8	3.31	1.7034	1348.8
700	3.53	1.7282	1374.9	3.51	1.7275	1374.9	3.49	1.7269	1374.8	3.47	1.7263	1374.7
750	3.69	1.7500	1400.7	3.67	1.7494	1400.7	3.65	1.7488	1400.6	3.64	1.7482	1400.6

	197 [380.6]			198 [381.0]			199 [381.4]			200 [381.9]		
Sat.	2.32	1.5469	1198.3	2.31	1.5464	1198.4	2.30	1.5460	1198.4	2.29	1.5456	1198.5
390	2.36	1.5539	1204.2	2.35	1.5531	1204.0	2.34	1.5524	1203.8	2.32	1.5516	1203.6
400	2.40	1.5611	1210.4	2.39	1.5603	1210.2	2.38	1.5596	1210.0	2.36	1.5589	1209.8
410	2.44	1.5681	1216.5	2.43	1.5674	1216.3	2.42	1.5667	1216.1	2.40	1.5660	1215.9
420	2.48	1.5750	1222.5	2.47	1.5743	1222.3	2.46	1.5736	1222.1	2.44	1.5729	1221.9
430	2.52	1.5817	1228.4	2.51	1.5810	1228.3	2.49	1.5803	1228.1	2.48	1.5796	1227.9
440	2.56	1.5883	1234.3	2.55	1.5876	1234.2	2.53	1.5869	1234.0	2.52	1.5862	1233.8
450	2.60	1.5948	1240.1	2.58	1.5941	1240.0	2.57	1.5934	1239.8	2.56	1.5927	1239.7
460	2.63	1.6011	1245.9	2.62	1.6004	1245.7	2.61	1.5997	1245.6	2.59	1.5990	1245.5
470	2.67	1.6072	1251.6	2.66	1.6066	1251.5	2.64	1.6059	1251.3	2.63	1.6052	1251.2
480	2.71	1.6133	1257.3	2.69	1.6126	1257.1	2.68	1.6119	1257.0	2.67	1.6113	1256.9
490	2.74	1.6192	1262.9	2.73	1.6186	1262.7	2.72	1.6179	1262.6	2.70	1.6172	1262.5
500	2.78	1.6251	1268.5	2.77	1.6244	1268.3	2.75	1.6237	1268.2	2.74	1.6231	1268.1
510	2.82	1.6308	1274.0	2.80	1.6301	1273.9	2.79	1.6295	1273.7	2.77	1.6288	1273.6
520	2.85	1.6364	1279.5	2.84	1.6358	1279.4	2.82	1.6351	1279.2	2.81	1.6345	1279.1
530	2.89	1.6420	1284.9	2.87	1.6413	1284.8	2.86	1.6407	1284.7	2.84	1.6400	1284.6
540	2.92	1.6474	1290.4	2.91	1.6468	1290.3	2.89	1.6462	1290.2	2.88	1.6455	1290.1
550	2.96	1.6528	1295.8	2.94	1.6522	1295.7	2.93	1.6515	1295.6	2.91	1.6509	1295.5
560	2.99	1.6581	1301.2	2.98	1.6574	1301.1	2.96	1.6568	1301.0	2.95	1.6562	1300.9
570	3.03	1.6633	1306.5	3.01	1.6626	1306.4	2.99	1.6620	1306.3	2.98	1.6614	1306.2
580	3.06	1.6684	1311.8	3.04	1.6678	1311.7	3.03	1.6672	1311.7	3.01	1.6666	1311.6
590	3.09	1.6735	1317.1	3.08	1.6729	1317.0	3.06	1.6723	1317.0	3.05	1.6717	1316.9
600	3.13	1.6786	1322.5	3.11	1.6780	1322.4	3.10	1.6774	1322.3	3.08	1.6768	1322.2
650	3.29	1.7028	1348.7	3.28	1.7022	1348.6	3.26	1.7016	1348.6	3.24	1.7010	1348.5
700	3.46	1.7257	1374.7	3.44	1.7251	1374.6	3.42	1.7245	1374.6	3.40	1.7239	1374.5
750	3.62	1.7476	1400.5	3.60	1.7470	1400.5	3.58	1.7464	1400.4	3.56	1.7458	1400.4

Pressure	201 [382.3]			202 [382.7]			203 [383.1]			204 [383.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.28	1.5451	1198.5	2.27	1.5447	1198.6	2.26	1.5443	1198.6	2.25	1.5438	1198.7
390	2.31	1.5509	1203.4	2.30	1.5501	1203.2	2.29	1.5494	1203.0	2.27	1.5487	1202.8
400	2.35	1.5581	1209.6	2.34	1.5574	1209.4	2.33	1.5567	1209.2	2.31	1.5560	1209.0
410	2.39	1.5652	1215.7	2.38	1.5645	1215.5	2.37	1.5638	1215.3	2.35	1.5631	1215.2
420	2.43	1.5721	1221.8	2.42	1.5714	1221.6	2.40	1.5707	1221.4	2.39	1.5700	1221.3
430	2.47	1.5789	1227.8	2.45	1.5782	1227.6	2.44	1.5775	1227.4	2.43	1.5768	1227.3
440	2.50	1.5855	1233.7	2.49	1.5848	1233.5	2.48	1.5841	1233.3	2.47	1.5835	1233.2
450	2.54	1.5920	1239.5	2.53	1.5913	1239.4	2.52	1.5906	1239.2	2.50	1.5900	1239.1
460	2.58	1.5983	1245.3	2.57	1.5976	1245.2	2.55	1.5970	1245.0	2.54	1.5963	1244.9
470	2.62	1.6045	1251.0	2.60	1.6038	1250.9	2.59	1.6032	1250.8	2.57	1.6025	1250.6
480	2.65	1.6106	1256.7	2.64	1.6099	1256.6	2.62	1.6093	1256.5	2.61	1.6086	1256.3
490	2.69	1.6166	1262.4	2.67	1.6159	1262.2	2.66	1.6153	1262.1	2.65	1.6146	1262.0
500	2.72	1.6224	1268.0	2.71	1.6218	1267.8	2.69	1.6211	1267.7	2.68	1.6205	1267.6
510	2.76	1.6282	1273.5	2.74	1.6275	1273.4	2.73	1.6269	1273.3	2.72	1.6263	1273.2
520	2.79	1.6338	1279.0	2.78	1.6332	1278.9	2.76	1.6326	1278.8	2.75	1.6319	1278.7
530	2.83	1.6394	1284.5	2.81	1.6388	1284.4	2.80	1.6381	1284.3	2.78	1.6375	1284.2
540	2.86	1.6449	1290.0	2.85	1.6443	1289.9	2.83	1.6436	1289.8	2.82	1.6430	1289.7
550	2.90	1.6503	1295.4	2.88	1.6497	1295.3	2.87	1.6490	1295.2	2.85	1.6484	1295.1
560	2.93	1.6556	1300.8	2.92	1.6550	1300.7	2.90	1.6544	1300.6	2.89	1.6537	1300.5
570	2.96	1.6608	1306.1	2.95	1.6602	1306.0	2.93	1.6596	1306.0	2.92	1.6590	1305.9
580	3.00	1.6660	1311.5	2.98	1.6654	1311.4	2.97	1.6648	1311.3	2.95	1.6642	1311.2
590	3.03	1.6711	1316.8	3.02	1.6705	1316.7	3.00	1.6699	1316.6	2.98	1.6693	1316.6
600	3.06	1.6762	1322.1	3.05	1.6755	1322.1	3.03	1.6749	1322.0	3.02	1.6743	1321.9
650	3.23	1.7004	1348.4	3.21	1.6998	1348.4	3.19	1.6992	1348.3	3.18	1.6986	1348.2
700	3.39	1.7234	1374.5	3.37	1.7228	1374.4	3.35	1.7222	1374.4	3.34	1.7216	1374.3
750	3.55	1.7452	1400.3	3.53	1.7447	1400.3	3.51	1.7441	1400.2	3.49	1.7435	1400.2

	205 [383.9]			206 [384.4]			207 [384.8]			208 [385.2]		
Sat.	2.24	1.5434	1198.7	2.23	1.5430	1198.8	2.22	1.5425	1198.8	2.21	1.5421	1198.9
390	2.26	1.5479	1202.6	2.25	1.5472	1202.4	2.24	1.5465	1202.2	2.23	1.5457	1202.0
400	2.30	1.5552	1208.8	2.29	1.5545	1208.6	2.28	1.5538	1208.4	2.26	1.5531	1208.2
410	2.34	1.5624	1215.0	2.33	1.5617	1214.8	2.32	1.5610	1214.6	2.30	1.5603	1214.4
420	2.38	1.5693	1221.1	2.37	1.5687	1220.9	2.35	1.5680	1220.7	2.34	1.5673	1220.5
430	2.42	1.5761	1227.1	2.40	1.5755	1226.9	2.39	1.5748	1226.7	2.38	1.5741	1226.6
440	2.45	1.5828	1233.0	2.44	1.5821	1232.9	2.43	1.5814	1232.7	2.41	1.5807	1232.5
450	2.49	1.5893	1238.9	2.48	1.5886	1238.8	2.47	1.5879	1238.6	2.45	1.5872	1238.4
460	2.53	1.5956	1244.7	2.51	1.5950	1244.6	2.50	1.5943	1244.4	2.49	1.5936	1244.3
470	2.56	1.6019	1250.5	2.55	1.6012	1250.3	2.53	1.6005	1250.2	2.52	1.5999	1250.1
480	2.60	1.6080	1256.2	2.58	1.6073	1256.0	2.57	1.6067	1255.9	2.56	1.6060	1255.8
490	2.63	1.6140	1261.8	2.62	1.6133	1261.7	2.61	1.6127	1261.6	2.59	1.6120	1261.5
500	2.67	1.6199	1267.4	2.65	1.6192	1267.3	2.64	1.6186	1267.2	2.63	1.6179	1267.1
510	2.70	1.6256	1273.0	2.69	1.6250	1272.9	2.67	1.6243	1272.8	2.66	1.6237	1272.7
520	2.74	1.6313	1278.6	2.72	1.6307	1278.5	2.71	1.6300	1278.3	2.69	1.6294	1278.2
530	2.77	1.6369	1284.1	2.76	1.6362	1284.0	2.74	1.6356	1283.8	2.73	1.6350	1283.7
540	2.80	1.6424	1289.6	2.79	1.6417	1289.5	2.78	1.6411	1289.3	2.76	1.6405	1289.2
550	2.84	1.6478	1295.0	2.82	1.6472	1294.9	2.81	1.6466	1294.8	2.80	1.6459	1294.7
560	2.87	1.6531	1300.4	2.86	1.6525	1300.3	2.84	1.6519	1300.2	2.83	1.6513	1300.1
570	2.90	1.6584	1305.8	2.89	1.6578	1305.7	2.87	1.6572	1305.6	2.86	1.6565	1305.5
580	2.94	1.6636	1311.1	2.92	1.6630	1311.1	2.91	1.6624	1311.0	2.89	1.6617	1310.9
590	2.97	1.6687	1316.5	2.95	1.6681	1316.4	2.94	1.6675	1316.3	2.93	1.6669	1316.2
600	3.00	1.6737	1321.8	2.99	1.6731	1321.7	2.97	1.6725	1321.7	2.96	1.6719	1321.6
650	3.16	1.6981	1348.2	3.15	1.6975	1348.1	3.13	1.6969	1348.0	3.12	1.6963	1348.0
700	3.32	1.7211	1374.3	3.30	1.7205	1374.2	3.29	1.7199	1374.1	3.27	1.7193	1374.1
750	3.48	1.7429	1400.2	3.46	1.7423	1400.1	3.44	1.7418	1400.1	3.42	1.7412	1400.0

Pressure	209 [385.6]			210 [386.0]			211 [386.4]			212 [386.8]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.20	1.5417	1198.9	2.19	1.5413	1199.0	2.18	1.5409	1199.1	2.17	1.5405	1199.1
390	2.21	1.5450	1201.8	2.20	1.5443	1201.6	2.19	1.5436	1201.4	2.18	1.5429	1201.1
400	2.25	1.5524	1208.0	2.24	1.5517	1207.9	2.23	1.5510	1207.7	2.22	1.5503	1207.5
410	2.29	1.5596	1214.2	2.28	1.5589	1214.1	2.27	1.5582	1213.9	2.26	1.5575	1213.7
420	2.33	1.5666	1220.4	2.32	1.5659	1220.2	2.30	1.5652	1220.0	2.29	1.5645	1219.8
430	2.37	1.5734	1226.4	2.35	1.5727	1226.2	2.34	1.5720	1226.1	2.33	1.5714	1225.9
440	2.40	1.5801	1232.4	2.39	1.5794	1232.2	2.38	1.5787	1232.1	2.37	1.5781	1231.9
450	2.44	1.5866	1238.3	2.43	1.5859	1238.1	2.41	1.5853	1238.0	2.40	1.5846	1237.8
460	2.47	1.5929	1244.1	2.46	1.5923	1244.0	2.45	1.5917	1243.8	2.44	1.5910	1243.7
470	2.51	1.5992	1249.9	2.50	1.5986	1249.8	2.48	1.5980	1249.6	2.47	1.5973	1249.5
480	2.54	1.6054	1255.6	2.53	1.6047	1255.5	2.52	1.6041	1255.4	2.51	1.6035	1255.2
490	2.58	1.6114	1261.3	2.57	1.6108	1261.2	2.55	1.6101	1261.1	2.54	1.6095	1260.9
500	2.61	1.6173	1267.0	2.60	1.6167	1266.9	2.59	1.6160	1266.7	2.57	1.6154	1266.6
510	2.65	1.6231	1272.6	2.63	1.6225	1272.5	2.62	1.6218	1272.3	2.61	1.6212	1272.2
520	2.68	1.6288	1278.1	2.67	1.6282	1278.0	2.65	1.6276	1277.9	2.64	1.6269	1277.8
530	2.71	1.6344	1283.6	2.70	1.6338	1283.5	2.69	1.6332	1283.4	2.67	1.6325	1283.3
540	2.75	1.6399	1289.1	2.73	1.6393	1289.0	2.72	1.6387	1288.9	2.71	1.6381	1288.8
550	2.78	1.6453	1294.6	2.77	1.6447	1294.5	2.75	1.6441	1294.4	2.74	1.6435	1294.3
560	2.81	1.6507	1300.0	2.80	1.6501	1299.9	2.79	1.6495	1299.8	2.77	1.6489	1299.7
570	2.85	1.6559	1305.4	2.83	1.6553	1305.3	2.82	1.6548	1305.2	2.80	1.6542	1305.1
580	2.88	1.6611	1310.8	2.86	1.6605	1310.7	2.85	1.6600	1310.6	2.84	1.6594	1310.5
590	2.91	1.6663	1316.1	2.90	1.6657	1316.1	2.88	1.6651	1316.0	2.87	1.6645	1315.9
600	2.94	1.6713	1321.5	2.93	1.6707	1321.4	2.91	1.6702	1321.3	2.90	1.6696	1321.2
650	3.10	1.6957	1347.9	3.09	1.6951	1347.8	3.07	1.6946	1347.7	3.06	1.6940	1347.7
700	3.25	1.7187	1374.0	3.24	1.7182	1374.0	3.22	1.7176	1373.9	3.21	1.7171	1373.9
750	3.41	1.7407	1400.0	3.39	1.7401	1399.9	3.37	1.7396	1399.9	3.36	1.7390	1399.8

	213 [387.2]			214 [387.6]			215 [388.0]			216 [388.4]		
Sat.	2.16	1.5400	1199.1	2.15	1.5396	1199.2	2.14	1.5392	1199.2	2.13	1.5388	1199.3
390	2.17	1.5422	1200.9	2.16	1.5414	1200.7	2.15	1.5407	1200.5	2.13	1.5400	1200.3
400	2.21	1.5496	1207.3	2.19	1.5489	1207.1	2.18	1.5482	1206.9	2.17	1.5475	1206.7
410	2.24	1.5568	1213.5	2.23	1.5561	1213.3	2.22	1.5554	1213.1	2.21	1.5547	1212.9
420	2.28	1.5638	1219.7	2.27	1.5631	1219.5	2.26	1.5625	1219.3	2.25	1.5618	1219.1
430	2.32	1.5707	1225.7	2.31	1.5700	1225.6	2.29	1.5694	1225.4	2.28	1.5687	1225.2
440	2.35	1.5774	1231.7	2.34	1.5767	1231.6	2.33	1.5761	1231.4	2.32	1.5754	1231.2
450	2.39	1.5840	1237.7	2.38	1.5833	1237.5	2.36	1.5827	1237.4	2.35	1.5820	1237.2
460	2.42	1.5904	1243.6	2.41	1.5897	1243.4	2.40	1.5891	1243.3	2.39	1.5884	1243.1
470	2.46	1.5967	1249.4	2.45	1.5960	1249.2	2.43	1.5954	1249.1	2.42	1.5947	1248.9
480	2.49	1.6028	1255.1	2.48	1.6022	1255.0	2.47	1.6015	1254.8	2.46	1.6009	1254.7
490	2.53	1.6089	1260.8	2.51	1.6082	1260.7	2.50	1.6076	1260.5	2.49	1.6070	1260.4
500	2.56	1.6148	1266.5	2.55	1.6142	1266.4	2.54	1.6136	1266.2	2.52	1.6129	1266.1
510	2.59	1.6206	1272.1	2.58	1.6200	1272.0	2.57	1.6194	1271.9	2.56	1.6188	1271.7
520	2.63	1.6263	1277.7	2.61	1.6257	1277.5	2.60	1.6251	1277.4	2.59	1.6145	1277.3
530	2.66	1.6319	1283.2	2.65	1.6313	1283.1	2.64	1.6307	1283.0	2.62	1.6301	1282.9
540	2.69	1.6375	1288.7	2.68	1.6369	1288.6	2.67	1.6363	1288.5	2.65	1.6357	1288.4
550	2.73	1.6429	1294.2	2.71	1.6423	1294.1	2.70	1.6417	1294.0	2.69	1.6411	1293.9
560	2.76	1.6483	1299.6	2.74	1.6477	1299.5	2.73	1.6471	1299.4	2.72	1.6465	1299.3
570	2.79	1.6536	1305.0	2.78	1.6530	1304.9	2.76	1.6524	1304.9	2.75	1.6518	1304.8
580	2.82	1.6588	1310.4	2.81	1.6582	1310.3	2.80	1.6576	1310.3	2.78	1.6570	1310.2
590	2.85	1.6639	1315.8	2.84	1.6633	1315.7	2.83	1.6628	1315.6	2.81	1.6622	1315.5
600	2.88	1.6690	1321.2	2.87	1.6684	1321.1	2.86	1.6678	1321.0	2.84	1.6673	1320.9
650	3.04	1.6934	1347.6	3.03	1.6929	1347.6	3.01	1.6923	1347.5	3.00	1.6917	1347.4
700	3.19	1.7165	1373.8	3.18	1.7159	1373.8	3.16	1.7154	1373.7	3.15	1.7148	1373.6
750	3.34	1.7385	1399.8	3.33	1.7379	1399.8	3.31	1.7374	1399.7	3.30	1.7368	1399.6

Pressure	217 [388.8]			218 [389.2]			219 [389.6]			220 [390.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.12	1.5384	1199.3	2.11	1.5380	1199.4	2.10	1.5376	1199.4	2.09	1.5372	1199.5
400	2.16	1.5468	1206.5	2.15	1.5461	1206.3	2.14	1.5454	1206.1	2.13	1.5447	1205.9
410	2.20	1.5540	1212.8	2.19	1.5534	1212.6	2.18	1.5527	1212.4	2.17	1.5520	1212.2
420	2.24	1.5611	1219.0	2.22	1.5605	1218.8	2.21	1.5598	1218.6	2.20	1.5591	1218.4
430	2.27	1.5680	1225.1	2.26	1.5674	1224.9	2.25	1.5667	1224.7	2.24	1.5660	1224.5
440	2.30	1.5747	1231.1	2.29	1.5741	1230.9	2.28	1.5734	1230.8	2.27	1.5728	1230.6
450	2.34	1.5813	1237.1	2.33	1.5807	1236.9	2.32	1.5801	1236.8	2.31	1.5794	1236.6
460	2.37	1.5878	1243.0	2.36	1.5871	1242.8	2.35	1.5865	1242.7	2.34	1.5859	1242.5
470	2.41	1.5941	1248.8	2.40	1.5935	1248.6	2.39	1.5928	1248.5	2.38	1.5922	1248.4
480	2.44	1.6003	1254.6	2.43	1.5997	1254.4	2.42	1.5990	1254.3	2.41	1.5984	1254.2
490	2.48	1.6064	1260.3	2.47	1.6057	1260.2	2.45	1.6051	1260.0	2.44	1.6045	1259.9
500	2.51	1.6123	1266.0	2.50	1.6117	1265.9	2.49	1.6111	1265.7	2.47	1.6105	1265.6
510	2.54	1.6182	1271.6	2.53	1.6175	1271.5	2.52	1.6169	1271.4	2.51	1.6163	1271.3
520	2.58	1.6239	1277.2	2.56	1.6233	1277.1	2.55	1.6227	1277.0	2.54	1.6221	1276.9
530	2.61	1.6295	1282.8	2.60	1.6289	1282.7	2.58	1.6283	1282.6	2.57	1.6277	1282.5
540	2.64	1.6351	1288.3	2.63	1.6345	1288.2	2.62	1.6339	1288.1	2.60	1.6333	1288.0
550	2.67	1.6405	1293.8	2.66	1.6399	1293.7	2.65	1.6394	1293.6	2.64	1.6388	1293.5
560	2.71	1.6459	1299.2	2.69	1.6453	1299.1	2.68	1.6448	1299.1	2.67	1.6442	1299.0
570	2.74	1.6512	1304.7	2.72	1.6506	1304.6	2.71	1.6501	1304.5	2.70	1.6495	1304.4
580	2.77	1.6564	1310.1	2.76	1.6558	1310.0	2.74	1.6553	1309.9	2.73	1.6547	1309.8
590	2.80	1.6616	1315.5	2.79	1.6610	1315.4	2.77	1.6605	1315.3	2.76	1.6599	1315.2
600	2.83	1.6667	1320.8	2.82	1.6661	1320.7	2.80	1.6656	1320.7	2.79	1.6650	1320.6
650	2.98	1.6912	1347.3	2.97	1.6906	1347.3	2.95	1.6901	1347.2	2.94	1.6895	1347.1
700	3.13	1.7143	1373.6	3.12	1.7137	1373.5	3.10	1.7132	1373.5	3.09	1.7126	1373.4
750	3.28	1.7363	1399.6	3.27	1.7357	1399.6	3.25	1.7352	1399.5	3.24	1.7346	1399.5
800	3.42	1.7573	1425.6	3.41	1.7568	1425.5	3.39	1.7562	1425.5	3.38	1.7557	1425.5

	221 [390.3]			222 [390.7]			223 [391.1]			224 [391.5]		
Sat.	2.08	1.5368	1199.5	2.07	1.5364	1199.6	2.06	1.5360	1199.6	2.05	1.5356	1199.7
400	2.12	1.5440	1205.7	2.11	1.5433	1205.5	2.10	1.5427	1205.3	2.09	1.5420	1205.1
410	2.15	1.5513	1212.0	2.14	1.5507	1211.8	2.13	1.5500	1211.6	2.12	1.5493	1211.4
420	2.19	1.5584	1218.2	2.18	1.5578	1218.0	2.17	1.5571	1217.9	2.16	1.5565	1217.7
430	2.23	1.5654	1224.4	2.22	1.5647	1224.2	2.20	1.5641	1224.0	2.19	1.5634	1223.9
440	2.26	1.5722	1230.4	2.25	1.5715	1230.3	2.24	1.5709	1230.1	2.23	1.5702	1230.0
450	2.30	1.5788	1236.4	2.28	1.5781	1236.3	2.27	1.5775	1236.1	2.26	1.5769	1236.0
460	2.33	1.5853	1242.4	2.32	1.5846	1242.2	2.31	1.5840	1242.1	2.30	1.5834	1241.9
470	2.36	1.5916	1248.2	2.35	1.5910	1248.1	2.34	1.5903	1247.9	2.33	1.5897	1247.8
480	2.40	1.5978	1254.0	2.38	1.5972	1253.9	2.37	1.5966	1253.7	2.36	1.5960	1253.6
490	2.43	1.6039	1259.8	2.42	1.6033	1259.6	2.41	1.6027	1259.5	2.40	1.6021	1259.4
500	2.47	1.6099	1265.5	2.45	1.6093	1265.4	2.44	1.6087	1265.2	2.43	1.6081	1265.1
510	2.50	1.6157	1271.1	2.48	1.6151	1271.0	2.47	1.6145	1270.9	2.46	1.6139	1270.8
520	2.53	1.6215	1276.7	2.52	1.6209	1276.6	2.50	1.6203	1276.5	2.49	1.6197	1276.4
530	2.56	1.6271	1282.3	2.55	1.6266	1282.2	2.54	1.6260	1282.1	2.52	1.6254	1282.0
540	2.59	1.6327	1287.9	2.58	1.6321	1287.8	2.57	1.6315	1287.7	2.56	1.6310	1287.6
550	2.62	1.6382	1293.4	2.61	1.6376	1293.3	2.60	1.6370	1293.2	2.59	1.6365	1293.1
560	2.65	1.6436	1298.9	2.64	1.6430	1298.8	2.63	1.6424	1298.7	2.62	1.6419	1298.6
570	2.69	1.6489	1304.3	2.67	1.6483	1304.2	2.66	1.6478	1304.1	2.65	1.6472	1304.0
580	2.72	1.6541	1309.7	2.70	1.6536	1309.6	2.69	1.6530	1309.5	2.68	1.6524	1309.4
590	2.75	1.6593	1315.1	2.73	1.6588	1315.0	2.72	1.6582	1314.9	2.71	1.6576	1314.8
600	2.78	1.6644	1320.5	2.77	1.6639	1320.4	2.75	1.6633	1320.3	2.74	1.6627	1320.2
650	2.93	1.6889	1347.1	2.91	1.6884	1347.0	2.90	1.6879	1346.9	2.89	1.6873	1346.9
700	3.08	1.7121	1373.4	3.06	1.7116	1373.3	3.05	1.7110	1373.2	3.03	1.7105	1373.2
750	3.22	1.7341	1399.4	3.21	1.7336	1399.4	3.19	1.7331	1399.3	3.17	1.7325	1399.3
800	3.36	1.7552	1425.4	3.35	1.7547	1425.4	3.33	1.7541	1425.3	3.32	1.7536	1425.3

Pressure	225 [391.9]			226 [392.3]			227 [392.7]			228 [393.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.05	1.5352	1199.7	2.04	1.5348	1199.8	2.03	1.5344	1199.8	2.02	1.5341	1199.8
400	2.08	1.5413	1204.9	2.07	1.5406	1204.7	2.06	1.5399	1204.5	2.05	1.5393	1204.3
410	2.11	1.5486	1211.3	2.10	1.5480	1211.1	2.09	1.5473	1210.9	2.08	1.5467	1210.7
420	2.15	1.5558	1217.5	2.14	1.5552	1217.3	2.13	1.5545	1217.2	2.12	1.5539	1217.0
430	2.18	1.5628	1223.7	2.17	1.5621	1223.5	2.16	1.5615	1223.4	2.15	1.5609	1223.2
440	2.22	1.5696	1229.8	2.21	1.5689	1229.6	2.20	1.5683	1229.5	2.19	1.5677	1229.3
450	2.25	1.5762	1235.8	2.24	1.5756	1235.6	2.23	1.5750	1235.5	2.22	1.5744	1235.3
460	2.28	1.5827	1241.8	2.27	1.5821	1241.6	2.26	1.5815	1241.5	2.25	1.5809	1241.3
470	2.32	1.5891	1247.7	2.31	1.5885	1247.5	2.30	1.5879	1247.4	2.29	1.5873	1247.2
480	2.35	1.5953	1253.5	2.34	1.5947	1253.3	2.33	1.5941	1253.2	2.32	1.5935	1253.1
490	2.38	1.6014	1259.3	2.37	1.6009	1259.1	2.36	1.6003	1259.0	2.35	1.5997	1258.9
500	2.42	1.6074	1265.0	2.40	1.6069	1264.9	2.39	1.6063	1264.7	2.38	1.6057	1264.6
510	2.45	1.6133	1270.7	2.44	1.6128	1270.5	2.43	1.6122	1270.4	2.42	1.6116	1270.3
520	2.48	1.6191	1276.3	2.47	1.6185	1276.2	2.46	1.6180	1276.1	2.45	1.6174	1275.9
530	2.51	1.6248	1281.9	2.50	1.6242	1281.8	2.49	1.6236	1281.7	2.48	1.6231	1281.6
540	2.54	1.6304	1287.5	2.53	1.6298	1287.4	2.52	1.6292	1287.3	2.51	1.6287	1287.1
550	2.57	1.6359	1293.0	2.56	1.6353	1292.9	2.55	1.6347	1292.8	2.54	1.6342	1292.7
560	2.60	1.6413	1298.5	2.59	1.6407	1298.4	2.58	1.6402	1298.3	2.57	1.6396	1298.2
570	2.64	1.6466	1303.9	2.62	1.6461	1303.8	2.61	1.6455	1303.7	2.60	1.6449	1303.7
580	2.67	1.6519	1309.4	2.65	1.6513	1309.3	2.64	1.6508	1309.2	2.63	1.6502	1309.1
590	2.70	1.6571	1314.8	2.68	1.6565	1314.7	2.67	1.6560	1314.6	2.66	1.6554	1314.5
600	2.73	1.6622	1320.2	2.71	1.6616	1320.1	2.70	1.6611	1320.0	2.69	1.6605	1319.9
650	2.88	1.6868	1346.8	2.86	1.6862	1346.7	2.85	1.6857	1346.7	2.84	1.6852	1346.6
700	3.02	1.7100	1373.1	3.01	1.7094	1373.1	2.99	1.7089	1373.0	2.98	1.7084	1373.0
750	3.16	1.7320	1399.2	3.15	1.7315	1399.2	3.13	1.7310	1399.1	3.12	1.7304	1399.1
800	3.30	1.7531	1425.3	3.29	1.7526	1425.2	3.27	1.7521	1425.2	3.26	1.7516	1425.1

	229 [393.4]			230 [393.8]			231 [394.2]			232 [394.5]		
Sat.	2.01	1.5337	1199.9	2.00	1.5333	1199.9	1.99	1.5329	1200.0	1.98	1.5325	1200.0
400	2.03	1.5386	1204.2	2.02	1.5379	1204.0	2.01	1.5373	1203.7	2.00	1.5366	1203.5
410	2.07	1.5460	1210.5	2.06	1.5453	1210.3	2.05	1.5447	1210.1	2.04	1.5440	1209.9
420	2.11	1.5532	1216.8	2.10	1.5526	1216.6	2.09	1.5519	1216.4	2.08	1.5513	1216.3
430	2.14	1.5602	1223.0	2.13	1.5596	1222.8	2.12	1.5589	1222.7	2.11	1.5583	1222.5
440	2.17	1.5670	1229.1	2.16	1.5664	1229.0	2.15	1.5658	1228.8	2.14	1.5651	1228.6
450	2.21	1.5737	1235.2	2.20	1.5731	1235.0	2.19	1.5725	1234.9	2.18	1.5719	1234.7
460	2.24	1.5803	1241.2	2.23	1.5797	1241.0	2.22	1.5790	1240.9	2.21	1.5784	1240.7
470	2.27	1.5867	1247.1	2.26	1.5861	1246.9	2.25	1.5855	1246.8	2.24	1.5849	1246.6
480	2.31	1.5929	1252.9	2.30	1.5923	1252.8	2.29	1.5917	1252.7	2.28	1.5911	1252.5
490	2.34	1.5991	1258.7	2.33	1.5985	1258.6	2.32	1.5979	1258.5	2.31	1.5973	1258.3
500	2.37	1.6051	1264.5	2.36	1.6045	1264.4	2.35	1.6039	1264.2	2.34	1.6033	1264.1
510	2.40	1.6110	1270.2	2.39	1.6104	1270.1	2.38	1.6098	1269.9	2.37	1.6092	1269.8
520	2.43	1.6168	1275.8	2.42	1.6162	1275.7	2.41	1.6156	1275.6	2.40	1.6151	1275.5
530	2.46	1.6225	1281.4	2.45	1.6219	1281.3	2.44	1.6213	1281.2	2.43	1.6208	1281.1
540	2.50	1.6281	1287.0	2.49	1.6275	1286.9	2.47	1.6270	1286.8	2.46	1.6264	1286.7
550	2.53	1.6336	1292.6	2.52	1.6331	1292.5	2.50	1.6325	1292.4	2.49	1.6319	1292.3
560	2.56	1.6390	1298.1	2.55	1.6385	1298.0	2.53	1.6379	1297.9	2.52	1.6374	1297.8
570	2.59	1.6443	1303.6	2.58	1.6438	1303.5	2.56	1.6433	1303.4	2.55	1.6427	1303.3
580	2.62	1.6496	1309.0	2.61	1.6491	1308.9	2.59	1.6485	1308.8	2.58	1.6480	1308.7
590	2.65	1.6548	1314.4	2.64	1.6543	1314.3	2.62	1.6537	1314.2	2.61	1.6532	1314.2
600	2.68	1.6600	1319.8	2.67	1.6594	1319.7	2.65	1.6589	1319.7	2.64	1.6583	1319.6
650	2.82	1.6846	1346.5	2.81	1.6841	1346.5	2.80	1.6836	1346.4	2.79	1.6830	1346.3
700	2.97	1.7078	1372.9	2.95	1.7073	1372.8	2.94	1.7068	1372.8	2.93	1.7063	1372.7
750	3.11	1.7299	1399.0	3.09	1.7294	1399.0	3.08	1.7289	1398.9	3.07	1.7284	1398.9
800	3.24	1.7510	1425.1	3.23	1.7505	1425.1	3.22	1.7500	1425.0	3.20	1.7495	1425.0

Pressure	233 [394.9]			234 [395.3]			235 [395.6]			236 [396.0]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.98	1.5321	1200.0	1.97	1.5318	1200.1	1.96	1.5314	1200.1	1.95	1.5310	1200.1
400	2.00	1.5360	1203.3	1.99	1.5353	1203.1	1.98	1.5346	1202.9	1.97	1.5340	1202.7
410	2.03	1.5434	1209.8	2.02	1.5427	1209.6	2.01	1.5421	1209.4	2.00	1.5414	1209.2
420	2.07	1.5506	1216.1	2.06	1.5500	1215.9	2.05	1.5494	1215.7	2.04	1.5487	1215.5
430	2.10	1.5576	1222.3	2.09	1.5570	1222.1	2.08	1.5564	1222.0	2.07	1.5558	1221.8
440	2.13	1.5645	1228.5	2.12	1.5639	1228.3	2.11	1.5633	1228.2	2.10	1.5627	1228.0
450	2.17	1.5712	1234.6	2.16	1.5706	1234.4	2.15	1.5700	1234.3	2.14	1.5694	1234.1
460	2.20	1.5778	1240.6	2.19	1.5772	1240.4	2.18	1.5766	1240.3	2.17	1.5760	1240.1
470	2.23	1.5842	1246.5	2.22	1.5836	1246.4	2.21	1.5831	1246.2	2.20	1.5825	1246.1
480	2.26	1.5905	1252.4	2.25	1.5899	1252.3	2.24	1.5894	1252.1	2.23	1.5888	1251.9
490	2.30	1.5967	1258.2	2.29	1.5961	1258.1	2.28	1.5955	1257.9	2.27	1.5950	1257.8
500	2.33	1.6028	1264.0	2.32	1.6022	1263.9	2.31	1.6016	1263.7	2.30	1.6010	1263.6
510	2.36	1.6087	1269.7	2.35	1.6081	1269.6	2.34	1.6075	1269.5	2.33	1.6070	1269.3
520	2.39	1.6145	1275.4	2.38	1.6139	1275.3	2.37	1.6134	1275.1	2.36	1.6128	1275.0
530	2.42	1.6202	1281.0	2.41	1.6196	1280.9	2.40	1.6191	1280.8	2.39	1.6186	1280.7
540	2.45	1.6258	1286.6	2.44	1.6253	1286.5	2.43	1.6247	1286.4	2.42	1.6242	1286.3
550	2.48	1.6314	1292.2	2.47	1.6308	1292.1	2.46	1.6303	1292.0	2.45	1.6297	1291.9
560	2.51	1.6368	1297.7	2.50	1.6363	1297.6	2.49	1.6357	1297.5	2.48	1.6352	1297.4
570	2.54	1.6422	1303.2	2.53	1.6416	1303.1	2.52	1.6411	1303.0	2.51	1.6405	1302.9
580	2.57	1.6475	1308.6	2.56	1.6469	1308.6	2.55	1.6464	1308.5	2.54	1.6458	1308.4
590	2.60	1.6527	1314.1	2.59	1.6521	1314.0	2.58	1.6516	1313.9	2.57	1.6510	1313.8
600	2.63	1.6578	1319.5	2.62	1.6573	1319.4	2.61	1.6567	1319.3	2.60	1.6562	1319.2
650	2.77	1.6825	1346.3	2.76	1.6820	1346.2	2.75	1.6815	1346.1	2.74	1.6809	1346.0
700	2.91	1.7058	1372.7	2.90	1.7053	1372.6	2.89	1.7047	1372.5	2.88	1.7042	1372.5
750	3.05	1.7279	1398.9	3.04	1.7274	1398.8	3.03	1.7269	1398.8	3.01	1.7264	1398.7
800	3.19	1.7490	1424.9	3.17	1.7485	1424.9	3.16	1.7480	1424.9	3.15	1.7475	1424.8

	237 [396.4]			238 [396.8]			239 [397.1]			240 [397.5]		
Sat.	1.95	1.5306	1200.2	1.94	1.5302	1200.2	1.93	1.5299	1200.2	1.92	1.5295	1200.3
400	1.96	1.5333	1202.5	1.95	1.5327	1202.3	1.94	1.5320	1202.2	1.93	1.5314	1202.0
410	1.99	1.5408	1209.0	1.98	1.5402	1208.8	1.97	1.5395	1208.6	1.96	1.5389	1208.4
420	2.03	1.5481	1215.4	2.02	1.5474	1215.2	2.01	1.5468	1215.0	2.00	1.5462	1214.8
430	2.06	1.5552	1221.6	2.05	1.5545	1221.5	2.04	1.5539	1221.3	2.03	1.5533	1221.1
440	2.09	1.5621	1227.8	2.08	1.5614	1227.7	2.07	1.5608	1227.5	2.07	1.5602	1227.3
450	2.13	1.5688	1233.9	2.12	1.5682	1233.8	2.11	1.5676	1233.6	2.10	1.5670	1233.5
460	2.16	1.5754	1240.0	2.15	1.5748	1239.8	2.14	1.5742	1239.7	2.13	1.5736	1239.5
470	2.19	1.5819	1245.9	2.18	1.5813	1245.8	2.17	1.5807	1245.6	2.16	1.5801	1245.5
480	2.22	1.5882	1251.8	2.21	1.5876	1251.7	2.20	1.5870	1251.6	2.19	1.5864	1251.4
490	2.26	1.5944	1257.7	2.25	1.5938	1257.5	2.24	1.5932	1257.4	2.23	1.5926	1257.3
500	2.29	1.6004	1263.5	2.28	1.5999	1263.3	2.27	1.5993	1263.2	2.26	1.5987	1263.1
510	2.32	1.6064	1269.2	2.31	1.6058	1269.1	2.30	1.6052	1269.0	2.29	1.6047	1268.8
520	2.35	1.6122	1274.9	2.34	1.6117	1274.8	2.33	1.6111	1274.7	2.32	1.6105	1274.5
530	2.38	1.6180	1280.6	2.37	1.6174	1280.5	2.36	1.6168	1280.3	2.35	1.6163	1280.2
540	2.41	1.6236	1286.2	2.40	1.6231	1286.1	2.39	1.6225	1286.0	2.38	1.6220	1285.9
550	2.44	1.6292	1291.8	2.43	1.6286	1291.6	2.42	1.6280	1291.5	2.41	1.6275	1291.4
560	2.47	1.6346	1297.3	2.46	1.6341	1297.2	2.45	1.6335	1297.1	2.44	1.6330	1297.0
570	2.50	1.6400	1302.8	2.49	1.6394	1302.7	2.48	1.6389	1302.6	2.46	1.6384	1302.5
580	2.53	1.6453	1308.3	2.52	1.6447	1308.2	2.50	1.6442	1308.1	2.49	1.6437	1308.0
590	2.56	1.6505	1313.7	2.54	1.6500	1313.6	2.53	1.6495	1313.6	2.52	1.6489	1313.5
600	2.59	1.6557	1319.2	2.57	1.6551	1319.1	2.56	1.6546	1319.0	2.55	1.6541	1318.9
650	2.73	1.6804	1346.0	2.71	1.6799	1345.9	2.70	1.6794	1345.8	2.69	1.6789	1345.8
700	2.87	1.7037	1372.4	2.85	1.7032	1372.4	2.84	1.7027	1372.3	2.83	1.7022	1372.3
750	3.00	1.7259	1398.7	2.99	1.7254	1398.6	2.97	1.7249	1398.6	2.96	1.7244	1398.5
800	3.13	1.7470	1424.8	3.12	1.7465	1424.7	3.11	1.7461	1424.7	3.09	1.7456	1424.7

Pressure	241 [397.9]			242 [398.2]			243 [398.6]			244 [398.9]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.91	1.5291	1200.3	1.91	1.5288	1200.4	1.90	1.5284	1200.4	1.89	1.5280	1200.4
400	1.92	1.5307	1201.8	1.91	1.5301	1201.6	1.90	1.5294	1201.4	1.89	1.5288	1201.2
410	1.96	1.5382	1208.3	1.95	1.5376	1208.1	1.94	1.5370	1207.9	1.93	1.5364	1207.7
420	1.99	1.5456	1214.7	1.98	1.5449	1214.5	1.97	1.5443	1214.3	1.96	1.5437	1214.1
430	2.02	1.5527	1221.0	2.01	1.5521	1220.8	2.00	1.5514	1220.6	1.99	1.5508	1220.4
440	2.06	1.5596	1227.2	2.05	1.5590	1227.0	2.04	1.5584	1226.8	2.03	1.5578	1226.7
450	2.09	1.5664	1233.3	2.08	1.5658	1233.1	2.07	1.5652	1233.0	2.06	1.5646	1232.8
460	2.12	1.5730	1239.4	2.11	1.5724	1239.2	2.10	1.5719	1239.1	2.09	1.5713	1238.9
470	2.15	1.5795	1245.4	2.14	1.5789	1245.2	2.13	1.5784	1245.1	2.12	1.5778	1244.9
480	2.18	1.5859	1251.3	2.17	1.5853	1251.1	2.16	1.5847	1251.0	2.15	1.5841	1250.9
490	2.22	1.5921	1257.2	2.21	1.5915	1257.0	2.20	1.5909	1256.9	2.19	1.5904	1256.8
500	2.25	1.5982	1263.0	2.24	1.5976	1262.8	2.23	1.5970	1262.7	2.22	1.5965	1262.6
510	2.28	1.6041	1268.7	2.27	1.6035	1268.6	2.26	1.6030	1268.5	2.25	1.6024	1268.4
520	2.31	1.6099	1274.4	2.30	1.6094	1274.3	2.29	1.6089	1274.2	2.28	1.6083	1274.1
530	2.34	1.6157	1280.1	2.33	1.6152	1280.0	2.32	1.6146	1279.9	2.31	1.6141	1279.8
540	2.37	1.6214	1285.7	2.36	1.6209	1285.6	2.35	1.6203	1285.5	2.34	1.6198	1285.4
550	2.40	1.6269	1291.3	2.39	1.6264	1291.2	2.38	1.6259	1291.1	2.37	1.6254	1291.0
560	2.42	1.6324	1296.9	2.41	1.6319	1296.8	2.40	1.6314	1296.7	2.39	1.6308	1296.5
570	2.45	1.6378	1302.4	2.44	1.6373	1302.3	2.43	1.6368	1302.2	2.42	1.6362	1302.1
580	2.48	1.6431	1307.9	2.47	1.6426	1307.8	2.46	1.6421	1307.7	2.45	1.6416	1307.6
590	2.51	1.6484	1313.4	2.50	1.6479	1313.3	2.49	1.6473	1313.2	2.48	1.6468	1313.1
600	2.54	1.6535	1318.8	2.53	1.6530	1318.7	2.52	1.6525	1318.7	2.51	1.6520	1318.6
650	2.68	1.6784	1345.7	2.67	1.6779	1345.6	2.66	1.6773	1345.6	2.65	1.6768	1345.5
700	2.81	1.7017	1372.2	2.80	1.7012	1372.1	2.79	1.7007	1372.1	2.78	1.7002	1372.0
750	2.95	1.7239	1398.5	2.94	1.7234	1398.4	2.92	1.7229	1398.4	2.91	1.7224	1398.3
800	3.08	1.7451	1424.6	3.07	1.7446	1424.6	3.05	1.7441	1424.5	3.04	1.7436	1424.5

	245 [399.3]			246 [399.7]			247 [400.0]			248 [400.4]		
Sat.	1.88	1.5276	1200.5	1.88	1.5273	1200.5	1.87	1.5269	1200.5	1.86	1.5266	1200.6
410	1.92	1.5357	1207.5	1.91	1.5351	1207.3	1.90	1.5344	1207.1	1.89	1.5338	1206.9
420	1.95	1.5430	1213.9	1.94	1.5424	1213.7	1.94	1.5418	1213.6	1.93	1.5412	1213.4
430	1.99	1.5502	1220.2	1.98	1.5496	1220.1	1.97	1.5490	1219.9	1.96	1.5484	1219.7
440	2.02	1.5572	1226.5	2.01	1.5566	1226.3	2.00	1.5560	1226.2	1.99	1.5554	1226.0
450	2.05	1.5640	1232.7	2.04	1.5634	1232.5	2.03	1.5628	1232.4	2.02	1.5622	1232.2
460	2.08	1.5707	1238.8	2.07	1.5701	1238.6	2.06	1.5695	1238.5	2.06	1.5689	1238.3
470	2.11	1.5772	1244.8	2.10	1.5766	1244.6	2.10	1.5760	1244.5	2.09	1.5754	1244.3
480	2.15	1.5836	1250.7	2.14	1.5830	1250.6	2.13	1.5824	1250.4	2.12	1.5818	1250.3
490	2.18	1.5898	1256.6	2.17	1.5892	1256.5	2.16	1.5887	1256.3	2.15	1.5881	1256.2
500	2.21	1.5959	1262.5	2.20	1.5953	1262.3	2.19	1.5948	1262.2	2.18	1.5942	1262.1
510	2.24	1.6019	1268.2	2.23	1.6013	1268.1	2.22	1.6008	1268.0	2.21	1.6002	1267.9
520	2.27	1.6078	1274.0	2.26	1.6072	1273.9	2.25	1.6067	1273.7	2.24	1.6061	1273.6
530	2.30	1.6135	1279.7	2.29	1.6130	1279.6	2.28	1.6125	1279.4	2.27	1.6119	1279.3
540	2.33	1.6192	1285.3	2.32	1.6187	1285.2	2.31	1.6182	1285.1	2.30	1.6176	1285.0
550	2.36	1.6248	1290.9	2.35	1.6243	1290.8	2.34	1.6238	1290.7	2.33	1.6232	1290.6
560	2.38	1.6303	1296.5	2.37	1.6298	1296.4	2.36	1.6293	1296.3	2.35	1.6287	1296.2
570	2.41	1.6357	1302.0	2.40	1.6352	1301.9	2.39	1.6347	1301.8	2.38	1.6341	1301.7
580	2.44	1.6410	1307.5	2.43	1.6405	1307.5	2.42	1.6400	1307.4	2.41	1.6395	1307.3
590	2.47	1.6463	1313.0	2.46	1.6458	1312.9	2.45	1.6453	1312.8	2.44	1.6447	1312.8
600	2.50	1.6514	1318.5	2.49	1.6509	1318.4	2.48	1.6504	1318.3	2.47	1.6499	1318.2
650	2.63	1.6763	1345.4	2.62	1.6758	1345.4	2.61	1.6753	1345.3	2.60	1.6748	1345.2
700	2.77	1.6997	1372.0	2.76	1.6992	1371.9	2.75	1.6987	1371.9	2.73	1.6982	1371.8
750	2.90	1.7219	1398.3	2.89	1.7215	1398.2	2.88	1.7210	1398.2	2.86	1.7205	1398.1
800	3.03	1.7431	1424.5	3.02	1.7427	1424.4	3.01	1.7422	1424.4	2.99	1.7417	1424.3
850	3.16	1.7635	1450.6	3.15	1.7630	1450.6	3.14	1.7625	1450.5	3.12	1.7621	1450.5

Pressure	250 [401.1]			255 [402.9]			260 [404.5]			265 [406.2]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.846	1.5258	1200.6	1.811	1.5241	1200.8	1.777	1.5223	1201.0	1.745	1.5206	1201.1
410	1.877	1.5326	1206.5	1.835	1.5295	1205.6	1.795	1.5264	1204.6	1.757	1.5234	1203.6
420	1.910	1.5400	1213.0	1.868	1.5369	1212.1	1.828	1.5339	1211.2	1.789	1.5309	1210.2
430	1.942	1.5472	1219.4	1.900	1.5442	1218.5	1.860	1.5413	1217.6	1.820	1.5383	1216.7
440	1.974	1.5542	1225.7	1.932	1.5513	1224.8	1.891	1.5484	1224.0	1.851	1.5455	1223.1
450	2.006	1.5611	1231.9	1.963	1.5582	1231.1	1.922	1.5553	1230.3	1.882	1.5525	1229.5
460	2.038	1.5678	1238.0	1.994	1.5649	1237.2	1.952	1.5621	1236.5	1.912	1.5593	1235.7
470	2.069	1.5743	1244.0	2.025	1.5715	1243.3	1.982	1.5687	1242.6	1.942	1.5659	1241.8
480	2.099	1.5807	1250.0	2.055	1.5779	1249.3	2.012	1.5752	1248.6	1.971	1.5724	1247.9
490	2.129	1.5870	1255.9	2.085	1.5842	1255.3	2.042	1.5815	1254.6	2.000	1.5788	1253.9
500	2.159	1.5931	1261.8	2.114	1.5904	1261.2	2.071	1.5877	1260.5	2.029	1.5850	1259.9
510	2.189	1.5991	1267.6	2.143	1.5964	1267.0	2.099	1.5938	1266.4	2.057	1.5911	1256.8
520	2.218	1.6050	1273.4	2.172	1.6024	1272.8	2.128	1.5998	1272.2	2.085	1.5971	1271.6
530	2.247	1.6108	1279.1	2.201	1.6082	1278.5	2.156	1.6056	1278.0	2.113	1.6030	1277.4
540	2.276	1.6166	1284.8	2.229	1.6139	1284.2	2.184	1.6113	1283.7	2.140	1.6088	1283.1
550	2.305	1.6222	1290.4	2.257	1.6196	1289.9	2.212	1.6170	1289.4	2.168	1.6145	1288.8
560	2.333	1.6277	1296.0	2.285	1.6251	1295.5	2.239	1.6225	1295.0	2.195	1.6200	1294.5
570	2.361	1.6331	1301.6	2.313	1.6305	1301.1	2.266	1.6280	1300.6	2.221	1.6255	1300.1
580	2.389	1.6384	1307.1	2.340	1.6359	1306.6	2.293	1.6334	1306.2	2.248	1.6309	1305.7
590	2.417	1.6437	1312.6	2.368	1.6412	1312.1	2.320	1.6387	1311.7	2.274	1.6362	1311.2
600	2.444	1.6489	1318.1	2.395	1.6464	1317.6	2.347	1.6439	1317.2	2.301	1.6415	1316.7
650	2.579	1.6738	1345.1	2.527	1.6714	1344.7	2.477	1.6690	1344.4	2.429	1.6666	1344.0
700	2.711	1.6973	1371.7	2.657	1.6949	1371.4	2.605	1.6925	1371.1	2.555	1.6902	1370.8
750	2.840	1.7195	1398.0	2.784	1.7172	1397.8	2.730	1.7149	1397.6	2.678	1.7126	1397.3
800	2.968	1.7408	1424.3	2.909	1.7385	1424.1	2.853	1.7362	1423.8	2.798	1.7339	1423.6
850	3.094	1.7612	1450.4	3.033	1.7589	1450.3	2.974	1.7566	1450.1	2.917	1.7544	1449.9

	270 [407.9]			275 [409.6]			280 [411.2]			285 [412.8]		
Sat.	1.713	1.5189	1201.2	1.683	1.5172	1201.4	1.654	1.5156	1201.5	1.625	1.5139	1201.6
420	1.751	1.5281	1209.3	1.715	1.5252	1208.4	1.680	1.5223	1207.4	1.647	1.5195	1206.5
430	1.782	1.5355	1215.8	1.746	1.5326	1215.0	1.711	1.5298	1214.1	1.677	1.5270	1213.2
440	1.813	1.5427	1222.3	1.776	1.5399	1221.4	1.741	1.5371	1220.6	1.707	1.5344	1219.7
450	1.843	1.5497	1228.6	1.806	1.5469	1227.8	1.770	1.5442	1227.0	1.736	1.5415	1226.2
460	1.873	1.5565	1234.9	1.835	1.5538	1234.1	1.799	1.5511	1233.3	1.764	1.5485	1232.6
470	1.902	1.5632	1241.1	1.864	1.5605	1240.3	1.828	1.5579	1239.6	1.792	1.5553	1238.8
480	1.931	1.5698	1247.2	1.893	1.5671	1246.5	1.856	1.5645	1245.8	1.820	1.5619	1245.0
490	1.960	1.5762	1253.2	1.921	1.5735	1252.6	1.884	1.5710	1251.9	1.848	1.5684	1251.2
500	1.988	1.5824	1259.2	1.949	1.5798	1258.6	1.911	1.5773	1257.9	1.875	1.5748	1257.3
510	2.016	1.5885	1265.1	1.977	1.5860	1264.5	1.939	1.5835	1263.9	1.902	1.5810	1263.3
520	2.044	1.5946	1271.0	2.004	1.5920	1270.4	1.966	1.5895	1269.8	1.929	1.5871	1269.2
530	2.071	1.6005	1276.8	2.031	1.5980	1276.2	1.992	1.5955	1275.7	1.955	1.5931	1275.1
540	2.098	1.6063	1282.6	2.058	1.6038	1282.0	2.019	1.6013	1281.5	1.981	1.5989	1280.9
550	2.125	1.6120	1288.3	2.084	1.6095	1287.8	2.045	1.6071	1287.2	2.007	1.6047	1286.7
560	2.152	1.6176	1294.0	2.110	1.6151	1293.5	2.070	1.6127	1292.9	2.032	1.6103	1292.5
570	2.178	1.6231	1299.6	2.136	1.6206	1299.1	2.096	1.6182	1298.6	2.057	1.6159	1298.2
580	2.204	1.6285	1305.2	2.162	1.6261	1304.7	2.122	1.6237	1304.3	2.082	1.6214	1303.8
590	2.230	1.6338	1310.8	2.188	1.6314	1310.3	2.147	1.6291	1309.9	2.107	1.6268	1309.4
600	2.256	1.6391	1316.3	2.213	1.6367	1315.9	2.172	1.6344	1315.5	2.132	1.6321	1315.0
650	2.382	1.6643	1343.7	2.338	1.6620	1343.3	2.295	1.6597	1342.9	2.253	1.6575	1342.6
700	2.506	1.6879	1370.5	2.459	1.6857	1370.2	2.414	1.6835	1369.9	2.371	1.6813	1369.6
750	2.627	1.7104	1397.1	2.578	1.7082	1396.8	2.531	1.7060	1396.6	2.486	1.7039	1396.3
800	2.746	1.7317	1423.4	2.695	1.7296	1423.2	2.646	1.7274	1423.0	2.599	1.7253	1422.8
850	2.863	1.7522	1449.7	2.810	1.7501	1449.6	2.759	1.7480	1449.4	2.710	1.7459	1449.2
900	2.979	1.7719	1476.0	2.924	1.7698	1475.9	2.872	1.7677	1475.7	2.821	1.7657	1475.6

Pressure	290 [414.4]			295 [415.9]			300 [417.5]			310 [420.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.598	1.5123	1201.7	1.571	1.5108	1201.8	1.545	1.5092	1201.9	1.496	1.5062	1202.0
420	1.614	1.5167	1205.5	1.583	1.5139	1204.6	1.553	1.5112	1203.6	....	.....	.....
430	1.644	1.5243	1212.3	1.612	1.5216	1211.4	1.582	1.5189	1210.4	1.523	1.5136	1208.6
440	1.673	1.5317	1218.9	1.641	1.5290	1218.0	1.610	1.5263	1217.1	1.551	1.5211	1215.4
450	1.702	1.5389	1225.4	1.670	1.5362	1224.5	1.638	1.5336	1223.7	1.579	1.5285	1222.0
460	1.730	1.5459	1231.8	1.698	1.5432	1231.0	1.666	1.5407	1230.2	1.606	1.5357	1228.6
470	1.758	1.5527	1238.1	1.725	1.5501	1237.3	1.693	1.5476	1236.6	1.633	1.5427	1235.0
480	1.786	1.5594	1244.3	1.753	1.5568	1243.6	1.720	1.5544	1242.9	1.659	1.5495	1241.4
490	1.813	1.5659	1250.5	1.780	1.5634	1249.8	1.747	1.5610	1249.1	1.685	1.5561	1247.7
500	1.840	1.5723	1256.6	1.806	1.5698	1255.9	1.773	1.5674	1255.2	1.711	1.5626	1253.9
510	1.866	1.5785	1262.6	1.832	1.5761	1262.0	1.799	1.5737	1261.3	1.736	1.5690	1260.0
520	1.893	1.5846	1268.6	1.858	1.5823	1268.0	1.825	1.5799	1267.4	1.761	1.5752	1266.1
530	1.919	1.5906	1274.5	1.884	1.5883	1273.9	1.850	1.5859	1273.3	1.786	1.5813	1272.1
540	1.944	1.5965	1280.4	1.909	1.5942	1279.8	1.875	1.5919	1279.2	1.810	1.5873	1278.1
550	1.970	1.6023	1286.2	1.934	1.6000	1285.6	1.900	1.5977	1285.1	1.834	1.5932	1284.0
560	1.995	1.6080	1291.9	1.959	1.6057	1291.4	1.924	1.6034	1290.9	1.858	1.5990	1289.8
570	2.020	1.6136	1297.6	1.984	1.6113	1297.1	1.949	1.6090	1296.6	1.882	1.6046	1295.6
580	2.045	1.6191	1303.3	2.008	1.6168	1302.8	1.973	1.6146	1302.4	1.905	1.6102	1301.4
590	2.069	1.6245	1309.0	2.032	1.6222	1308.5	1.997	1.6200	1308.1	1.929	1.6157	1307.1
600	2.093	1.6298	1314.6	2.056	1.6276	1314.1	2.020	1.6254	1313.7	1.952	1.6211	1312.8
650	2.213	1.6553	1342.2	2.174	1.6532	1341.8	2.136	1.6510	1341.5	2.065	1.6469	1340.7
700	2.329	1.6792	1369.3	2.288	1.6771	1369.0	2.249	1.6750	1368.7	2.174	1.6710	1368.1
750	2.442	1.7018	1396.1	2.400	1.6997	1395.8	2.359	1.6977	1395.6	2.281	1.6937	1395.0
800	2.553	1.7233	1422.6	2.509	1.7213	1422.4	2.467	1.7193	1422.2	2.386	1.7153	1421.7
850	2.663	1.7439	1449.0	2.617	1.7419	1448.9	2.573	1.7399	1448.7	2.489	1.7360	1448.3
900	2.772	1.7637	1475.4	2.724	1.7617	1475.3	2.678	1.7597	1475.1	2.591	1.7559	1474.8

	320 [423.4]			330 [426.3]			340 [429.1]			350 [431.9]		
Sat.	1.450	1.5032	1202.2	1.407	1.5004	1202.3	1.366	1.4976	1202.4	1.327	1.4949	1202.5
430	1.469	1.5084	1206.8	1.417	1.5033	1204.9	1.368	1.4983	1203.0	....	.....	.....
440	1.496	1.5160	1213.6	1.444	1.5110	1211.8	1.395	1.5061	1210.0	1.348	1.5013	1208.2
450	1.523	1.5235	1220.3	1.471	1.5186	1218.6	1.421	1.5137	1216.9	1.374	1.5090	1215.2
460	1.550	1.5307	1227.0	1.497	1.5259	1225.3	1.447	1.5211	1223.7	1.399	1.5165	1222.0
470	1.576	1.5378	1233.5	1.522	1.5330	1231.9	1.472	1.5283	1230.4	1.424	1.5238	1228.8
480	1.602	1.5447	1239.9	1.547	1.5400	1238.4	1.497	1.5354	1236.9	1.448	1.5309	1235.4
490	1.627	1.5514	1246.3	1.572	1.5468	1244.9	1.521	1.5422	1243.4	1.472	1.5378	1242.0
500	1.652	1.5580	1252.6	1.597	1.5534	1251.2	1.545	1.5489	1249.8	1.496	1.5446	1248.4
510	1.677	1.5644	1258.8	1.621	1.5599	1257.4	1.569	1.5555	1256.1	1.519	1.5512	1254.8
520	1.701	1.5707	1264.9	1.645	1.5662	1263.6	1.592	1.5619	1262.4	1.542	1.5576	1261.1
530	1.725	1.5768	1271.0	1.669	1.5724	1269.7	1.615	1.5681	1268.5	1.565	1.5639	1267.3
540	1.749	1.5829	1277.0	1.692	1.5785	1275.8	1.638	1.5743	1274.6	1.587	1.5701	1273.5
550	1.773	1.5888	1282.9	1.715	1.5845	1281.8	1.661	1.5803	1280.7	1.609	1.5762	1279.6
560	1.796	1.5946	1288.8	1.738	1.5903	1287.7	1.683	1.5862	1286.6	1.631	1.5821	1285.6
570	1.819	1.6003	1294.6	1.761	1.5961	1293.6	1.705	1.5920	1292.6	1.653	1.5879	1291.5
580	1.842	1.6059	1300.4	1.783	1.6017	1299.5	1.727	1.5977	1298.5	1.674	1.5937	1297.4
590	1.865	1.6114	1306.2	1.805	1.6073	1305.2	1.749	1.6033	1304.3	1.696	1.5993	1303.3
600	1.887	1.6169	1311.9	1.827	1.6128	1311.0	1.770	1.6088	1310.1	1.717	1.6048	1309.2
650	1.997	1.6428	1340.0	1.934	1.6388	1339.3	1.875	1.6350	1338.5	1.819	1.6312	1337.8
700	2.104	1.6670	1367.5	2.038	1.6632	1366.9	1.976	1.6594	1366.2	1.918	1.6558	1365.6
750	2.208	1.6898	1394.5	2.140	1.6861	1394.0	2.075	1.6824	1393.5	2.014	1.6789	1393.0
800	2.310	1.7115	1421.3	2.239	1.7078	1420.9	2.172	1.7042	1420.4	2.109	1.7008	1420.0
850	2.410	1.7323	1447.9	2.336	1.7286	1447.6	2.267	1.7251	1447.2	2.201	1.7217	1446.8
900	2.509	1.7522	1474.5	2.433	1.7486	1474.2	2.360	1.7451	1473.9	2.292	1.7417	1473.6
950	2.607	1.7714	1501.1	2.528	1.7678	1500.9	2.453	1.7643	1500.6	2.382	1.7610	1500.3

Pressure	360 [434.6]			370 [437.2]			380 [439.8]			390 [441.0]		
Temp ° F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.291	1.4922	1202.5	1.256	1.4896	1202.6	1.223	1.4871	1202.6	1.192	1.4847	1202.6
440	1.305	1.4965	1206.4	1.263	1.4919	1204.6	1.224	1.4872	1202.7	....	.....	.....
450	1.330	1.5043	1213.4	1.288	1.4997	1211.7	1.248	1.4952	1209.9	1.211	1.4908	1208.2
460	1.355	1.5119	1220.4	1.312	1.5074	1218.7	1.272	1.5030	1217.0	1.234	1.4986	1215.3
470	1.379	1.5193	1227.2	1.336	1.5149	1225.6	1.296	1.5105	1224.0	1.257	1.5062	1222.3
480	1.403	1.5265	1233.9	1.360	1.5221	1232.4	1.319	1.5178	1230.8	1.280	1.5136	1229.3
490	1.427	1.5335	1240.5	1.383	1.5292	1239.0	1.342	1.5249	1237.5	1.303	1.5208	1236.1
500	1.450	1.5403	1247.0	1.406	1.5361	1245.6	1.364	1.5319	1244.2	1.325	1.5278	1242.8
510	1.473	1.5469	1253.4	1.428	1.5428	1252.1	1.386	1.5387	1250.7	1.347	1.5347	1249.4
520	1.495	1.5534	1259.8	1.450	1.5494	1258.5	1.408	1.5453	1257.2	1.368	1.5414	1255.9
530	1.517	1.5598	1266.1	1.472	1.5558	1264.8	1.429	1.5518	1263.6	1.389	1.5479	1262.3
540	1.539	1.5660	1272.3	1.494	1.5621	1271.1	1.451	1.5581	1269.9	1.410	1.5544	1268.7
550	1.561	1.5721	1278.4	1.515	1.5682	1277.3	1.472	1.5643	1276.1	1.430	1.5605	1275.0
560	1.582	1.5781	1284.5	1.536	1.5742	1283.4	1.492	1.5704	1282.3	1.450	1.5667	1281.2
570	1.604	1.5840	1290.5	1.557	1.5801	1289.4	1.513	1.5764	1288.4	1.470	1.5727	1287.3
580	1.625	1.5898	1296.5	1.577	1.5859	1295.4	1.533	1.5822	1294.4	1.490	1.5786	1293.4
590	1.645	1.5954	1302.4	1.598	1.5917	1301.4	1.553	1.5880	1300.4	1.510	1.5843	1299.4
600	1.666	1.6010	1308.2	1.618	1.5973	1307.3	1.572	1.5936	1306.4	1.529	1.5900	1305.4
650	1.766	1.6275	1337.0	1.716	1.6239	1336.2	1.669	1.6204	1335.4	1.623	1.6170	1334.6
700	1.863	1.6522	1365.0	1.811	1.6487	1364.3	1.761	1.6453	1363.7	1.713	1.6420	1363.0
750	1.957	1.6754	1392.4	1.903	1.6720	1391.9	1.851	1.6687	1391.4	1.802	1.6654	1390.8
800	2.049	1.6974	1419.5	1.992	1.6940	1419.1	1.939	1.6908	1418.6	1.888	1.6876	1418.2
850	2.139	1.7183	1446.5	2.080	1.7150	1446.1	2.024	1.7118	1445.7	1.972	1.7087	1445.3
900	2.228	1.7384	1473.3	2.167	1.7352	1472.9	2.109	1.7320	1472.6	2.054	1.7290	1472.3
950	2.316	1.7577	1500.1	2.252	1.7545	1499.8	2.193	1.7514	1499.5	2.136	1.7483	1499.2
1000	2.403	1.7764	1526.9	2.337	1.7732	1526.6	2.276	1.7701	1526.4	2.216	1.7671	1526.2

	400 [444.8]			420 [449.6]			440 [454.2]			460 [458.7]		
Sat.	1.162	1.4821	1202.5	1.107	1.4773	1202.4	1.056	1.4728	1202.3	1.010	1.4685	1202.1
460	1.198	1.4943	1213.6	1.131	1.4858	1210.2	1.069	1.4776	1206.7	1.013	1.4696	1203.1
470	1.221	1.5020	1220.7	1.153	1.4937	1217.4	1.091	1.4856	1214.1	1.034	1.4778	1210.7
480	1.243	1.5094	1227.7	1.175	1.5013	1224.5	1.112	1.4934	1221.3	1.055	1.4857	1218.1
490	1.265	1.5167	1234.6	1.196	1.5087	1231.5	1.133	1.5010	1228.5	1.075	1.4934	1225.4
500	1.287	1.5238	1241.3	1.217	1.5159	1238.4	1.154	1.5083	1235.5	1.095	1.5009	1232.5
510	1.309	1.5307	1248.0	1.238	1.5230	1245.2	1.174	1.5155	1242.4	1.115	1.5082	1239.6
520	1.330	1.5374	1254.6	1.258	1.5298	1251.9	1.193	1.5225	1249.2	1.134	1.5153	1246.5
530	1.350	1.5440	1261.1	1.278	1.5365	1258.5	1.213	1.5293	1255.9	1.153	1.5222	1253.3
540	1.371	1.5505	1267.5	1.298	1.5431	1265.0	1.232	1.5359	1262.5	1.172	1.5289	1260.0
550	1.391	1.5568	1273.8	1.318	1.5495	1271.4	1.251	1.5424	1269.1	1.190	1.5355	1266.7
560	1.411	1.5629	1280.0	1.337	1.5557	1277.8	1.270	1.5488	1275.5	1.209	1.5420	1273.2
570	1.430	1.5690	1286.2	1.356	1.5619	1284.1	1.288	1.5550	1281.9	1.227	1.5483	1279.7
580	1.450	1.5749	1292.4	1.375	1.5679	1290.3	1.307	1.5611	1288.2	1.244	1.5545	1286.1
590	1.469	1.5807	1298.5	1.393	1.5738	1296.4	1.325	1.5670	1294.4	1.262	1.5605	1292.4
600	1.488	1.5864	1304.5	1.412	1.5796	1302.5	1.342	1.5729	1300.6	1.279	1.5665	1298.6
610	1.507	1.5921	1310.5	1.430	1.5852	1308.6	1.360	1.5786	1306.7	1.296	1.5723	1304.8
620	1.526	1.5976	1316.4	1.448	1.5908	1314.6	1.377	1.5843	1312.8	1.313	1.5780	1311.0
630	1.544	1.6030	1322.3	1.466	1.5963	1320.5	1.395	1.5899	1318.8	1.329	1.5836	1317.0
640	1.562	1.6083	1328.1	1.483	1.6017	1326.4	1.412	1.5954	1324.8	1.346	1.5891	1323.1
650	1.581	1.6136	1333.9	1.501	1.6070	1332.3	1.429	1.6007	1330.7	1.362	1.5945	1329.1
700	1.669	1.6387	1362.4	1.586	1.6324	1361.1	1.511	1.6263	1359.7	1.442	1.6204	1358.4
750	1.755	1.6622	1390.3	1.669	1.6561	1389.2	1.590	1.6502	1388.1	1.519	1.6445	1386.9
800	1.839	1.6845	1417.7	1.750	1.6785	1416.9	1.668	1.6727	1415.9	1.593	1.6672	1414.9
850	1.921	1.7057	1444.9	1.829	1.6998	1444.1	1.743	1.6941	1443.3	1.666	1.6887	1442.6
900	2.002	1.7259	1472.0	1.906	1.7201	1471.3	1.817	1.7146	1470.6	1.737	1.7092	1470.0

Pressure	480 [463.1]			500 [467.2]			550 [477.2]			600 [486.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	0.968	1.4643	1201.9	0.928	1.4601	1201.7	0.842	1.4505	1200.8	0.770	1.4414	1199.8
470	0.982	1.4700	1207.3	0.934	1.4625	1203.8	....	.....	.....	....	.....	.....
480	1.002	1.4781	1214.8	.954	1.4707	1211.5	0.848	1.4529	1203.1	....	.....	.....
490	1.022	1.4860	1222.2	.973	1.4787	1219.1	.866	1.4613	1211.0	0.776	1.4444	1202.6
500	1.042	1.4936	1229.5	0.992	1.4865	1226.5	0.884	1.4694	1218.8	0.794	1.4530	1210.8
510	1.061	1.5010	1236.7	1.011	1.4940	1233.8	.902	1.4773	1226.4	.811	1.4613	1218.8
520	1.080	1.5082	1243.7	1.030	1.5014	1240.9	.920	1.4849	1233.8	.828	1.4693	1226.5
530	1.099	1.5152	1250.7	1.048	1.5086	1248.0	.937	1.4923	1241.2	.844	1.4770	1234.2
540	1.117	1.5221	1257.5	1.066	1.5155	1254.9	.954	1.4996	1248.4	.860	1.4845	1241.7
550	1.135	1.5288	1264.2	1.083	1.5223	1261.8	0.971	1.5067	1255.5	0.876	1.4918	1249.0
560	1.152	1.5354	1270.9	1.100	1.5290	1268.5	0.987	1.5136	1262.5	.892	1.4990	1256.3
570	1.170	1.5418	1277.4	1.117	1.5355	1275.1	1.003	1.5203	1269.4	.907	1.5060	1263.4
580	1.187	1.5480	1283.9	1.134	1.5418	1281.7	1.019	1.5269	1276.2	.922	1.5128	1270.4
590	1.204	1.5542	1290.3	1.151	1.5481	1288.2	1.034	1.5333	1282.9	.937	1.5194	1277.4
600	1.221	1.5602	1296.6	1.167	1.5542	1294.6	1.050	1.5396	1289.5	0.951	1.5259	1284.2
610	1.237	1.5661	1302.9	1.183	1.5601	1301.0	1.065	1.5457	1296.0	.966	1.5322	1291.0
620	1.254	1.5719	1309.1	1.199	1.5659	1307.3	1.080	1.5518	1302.5	.980	1.5384	1297.6
630	1.270	1.5776	1315.3	1.215	1.5717	1313.5	1.094	1.5577	1308.9	.994	1.5445	1304.2
640	1.286	1.5831	1321.4	1.230	1.5773	1319.6	1.109	1.5635	1315.2	1.008	1.5505	1310.7
650	1.302	1.5886	1327.4	1.246	1.5828	1325.7	1.123	1.5691	1321.5	1.021	1.5563	1317.2
700	1.379	1.6147	1357.0	1.320	1.6092	1355.6	1.193	1.5961	1352.1	1.087	1.5839	1348.5
750	1.453	1.6390	1385.8	1.392	1.6337	1384.6	1.260	1.6211	1381.7	1.149	1.6094	1378.7
800	1.525	1.6618	1414.0	1.462	1.6567	1413.0	1.324	1.6445	1410.5	1.209	1.6331	1408.0
850	1.595	1.6834	1441.7	1.529	1.6784	1440.9	1.387	1.6665	1438.8	1.267	1.6555	1436.7
900	1.664	1.7041	1469.3	1.596	1.6991	1468.6	1.448	1.6875	1466.8	1.324	1.6767	1465.0
950	1.731	1.7239	1496.7	1.661	1.7190	1496.1	1.508	1.7075	1494.6	1.380	1.6969	1493.0

	650 [495.2]			700 [503.4]			750 [511.1]			800 [518.5]		
Sat.	0.708	1.4330	1198.7	0.656	1.4250	1197.4	0.610	1.4175	1195.9	0.570	1.4104	1194.4
510	0.733	1.4458	1211.0	0.667	1.4309	1203.0	....	.....	.....	....	.....	.....
520	.750	1.4542	1219.1	.682	1.4396	1211.5	0.623	1.4255	1203.7	0.572	1.4117	1195.8
530	.766	1.4622	1227.0	.697	1.4480	1219.7	.638	1.4342	1212.3	.586	1.4207	1204.6
540	.781	1.4700	1234.8	.712	1.4561	1227.8	.653	1.4426	1220.6	.600	1.4295	1213.3
550	0.796	1.4776	1242.5	0.727	1.4640	1235.7	0.667	1.4508	1228.8	0.614	1.4379	1221.8
560	.811	1.4850	1250.0	.741	1.4716	1243.5	.681	1.4587	1236.9	.628	1.4461	1230.2
570	.826	1.4922	1257.3	.756	1.4791	1251.1	.695	1.4664	1244.8	.641	1.4541	1238.3
580	.840	1.4992	1264.6	.769	1.4864	1258.6	.708	1.4739	1252.6	.654	1.4618	1246.4
590	.854	1.5061	1271.8	.783	1.4934	1266.0	.721	1.4812	1260.2	.667	1.4694	1254.2
600	0.868	1.5128	1278.8	0.796	1.5003	1273.3	0.734	1.4883	1267.7	0.679	1.4767	1261.9
610	.882	1.5193	1285.8	.809	1.5071	1280.5	.746	1.4953	1275.1	.691	1.4839	1269.5
620	.895	1.5257	1292.6	.822	1.5137	1287.5	.759	1.5020	1282.3	.703	1.4908	1277.1
630	.908	1.5320	1299.4	.835	1.5201	1294.5	.771	1.5086	1289.5	.715	1.4976	1284.4
640	.921	1.5381	1306.1	.847	1.5264	1301.4	.783	1.5151	1296.5	.727	1.5042	1291.6
650	0.934	1.5441	1312.7	0.860	1.5325	1308.2	0.795	1.5214	1303.5	0.738	1.5107	1298.8
660	.947	1.5499	1319.2	.872	1.5385	1314.9	.807	1.5276	1310.4	.749	1.5170	1305.8
670	.960	1.5557	1325.7	.884	1.5444	1321.5	.818	1.5336	1317.2	.760	1.5232	1312.8
680	.972	1.5614	1332.1	.896	1.5502	1328.1	.830	1.5496	1323.9	.771	1.5293	1319.7
690	.984	1.5669	1338.5	.908	1.5559	1334.6	.841	1.5454	1330.6	.782	1.5353	1326.5
700	0.997	1.5724	1344.8	0.919	1.5615	1341.0	0.852	1.5511	1337.2	0.793	1.5411	1333.2
750	1.056	1.5983	1375.6	0.975	1.5880	1372.4	.905	1.5781	1369.2	.844	1.5687	1365.9
800	1.112	1.6225	1405.4	1.029	1.6125	1402.7	.956	1.6031	1400.0	.893	1.5941	1397.3
850	1.167	1.6452	1434.5	1.080	1.6355	1432.3	1.005	1.6264	1430.0	.939	1.6177	1427.6
900	1.220	1.6667	1463.1	1.130	1.6573	1461.2	1.052	1.6484	1459.3	.984	1.6400	1456.7
950	1.272	1.6871	1491.4	1.179	1.6779	1489.8	1.098	1.6692	1488.2	1.028	1.6610	1486.5

Pressures in Inches of Mercury

Temp. ° F.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
190	19.01	19.05	19.09	19.13	19.18	19.22	19.26	19.30	19.34	19.38
191	19.42	19.47	19.51	19.55	19.59	19.63	19.67	19.72	19.76	19.80
192	19.84	19.88	19.93	19.97	20.01	20.05	20.10	20.14	20.18	20.22
193	20.27	20.31	20.35	20.40	20.44	20.48	20.53	20.57	20.61	20.66
194	20.70	20.74	20.79	20.83	20.88	20.92	20.96	21.01	21.05	21.10
195	21.14	21.19	21.23	21.28	21.32	21.37	21.41	21.46	21.50	21.55
196	21.59	21.64	21.68	21.73	21.77	21.82	21.86	21.91	21.96	22.00
197	22.05	22.09	22.14	22.19	22.23	22.28	22.33	22.37	22.42	22.47
198	22.51	22.56	22.61	22.65	22.70	22.75	22.80	22.84	22.89	22.94
199	22.99	23.03	23.08	23.13	23.18	23.23	23.27	23.32	23.37	23.42
200	23.47	23.52	23.56	23.61	23.66	23.71	23.76	23.81	23.86	23.91
201	23.96	24.00	24.05	24.10	24.15	24.20	24.25	24.30	24.35	24.40
202	24.45	24.50	24.55	24.60	24.66	24.71	24.76	24.81	24.86	24.91
203	24.96	25.01	25.06	25.11	25.16	25.22	25.27	25.32	25.37	25.42
204	25.47	25.53	25.58	25.63	25.68	25.74	25.79	25.84	25.89	25.95
205	26.00	26.05	26.10	26.16	26.21	26.26	26.32	26.37	26.42	26.48
206	26.53	26.59	26.64	26.69	26.75	26.80	26.86	26.91	26.96	27.02
207	27.07	27.13	27.18	27.24	27.29	27.35	27.40	27.46	27.51	27.57
208	27.62	27.68	27.74	27.79	27.85	27.90	27.96	28.02	28.07	28.13
209	28.18	28.24	28.30	28.35	28.41	28.47	28.53	28.58	28.64	28.70
210	28.75	28.81	28.87	28.93	28.99	29.04	29.10	29.16	29.22	29.28
211	29.33	29.39	29.45	29.51	29.57	29.63	29.69	29.75	29.80	29.86
212	29.92	29.98	30.04	30.10	30.16	30.22	30.28	30.34	30.40	30.46
213	30.52	30.58	30.64	30.70	30.76	30.82	30.88	30.94	31.00	31.06

Temperatures, Fahrenheit

Pressure, in. of Hg.	.0	.1	.2	.3	.4	.5	.6	.7	.8	.9
20	192.37	192.61	192.84	193.08	193.31	193.54	193.77	194.00	194.23	194.46
21	194.68	194.91	195.13	195.35	195.58	195.80	196.02	196.24	196.46	196.68
22	196.90	197.12	197.33	197.54	197.76	197.97	198.19	198.40	198.61	198.82
23	199.03	199.24	199.45	199.66	199.86	200.07	200.27	200.48	200.69	200.89
24	201.09	201.29	201.49	201.69	201.89	202.09	202.29	202.49	202.69	202.88
25	203.08	203.28	203.47	203.66	203.86	204.05	204.24	204.43	204.62	204.81
26	205.00	205.19	205.38	205.57	205.76	205.94	206.13	206.31	206.50	206.69
27	206.87	207.05	207.23	207.41	207.60	207.78	207.96	208.14	208.32	208.49
28	208.67	208.85	209.03	209.20	209.38	209.56	209.73	209.91	210.08	210.25
29	210.43	210.60	210.77	210.94	211.11	211.28	211.45	211.62	211.79	211.96
30	212.13	212.30	212.47	212.63	212.80	212.97	213.13	213.30	213.46	213.63

Temp., °F.	Sat. pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	144 Apv′	Specific heat	Temp., °F.	Sat. pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	144 Apv′	Specific heat.
20	0.050	0.01603	62.37	0.000	1.0210	370	173.2	0.01829	54.66	0.585	1.053
30	.081	.01602	62.42	.000	1.0104	380	195.6	.01843	54.25	.665	1.057
40	.122	.01602	62.43	.000	1.0048	390	220.1	.01857	53.84	.754	1.062
50	0.178	0.01602	62.42	0.001	1.0015	**400**	247	0.0187	53.42	0.855	1.067
60	.256	.01603	62.37	.001	0.9995	410	276	.0189	52.99	0.966	1.072
70	.363	.01605	62.30	.001	.9982	420	308	.0190	52.55	1.09	1.078
80	.507	.01607	62.22	.002	.9975	430	343	.0192	52.11	1.22	1.083
90	.698	.01610	62.11	.002	.9971	440	381	.0194	51.66	1.37	1.089
100	0.949	0.01613	62.00	0.003	0.9970	**450**	422	0.0195	51.2	1.53	1.095
110	1.274	.01616	61.86	.004	.9971	460	466	.0197	50.7	1.70	1.101
120	1.692	.01620	61.71	.005	.9974	470	514	.0199	50.2	1.89	1.107
130	2.221	.01625	61.55	.007	.9978	480	565	.0201	49.7	2.10	1.114
140	2.887	.01629	61.38	.009	.9984	490	620	.0203	49.2	2.33	1.121
150	3.716	0.01634	61.20	0.011	0.9990	**500**	679	0.0205	48.7	2.58	1.130
160	4.739	.01639	61.00	.014	0.9998	510	743	.0208	48.2	2.86	1.140
170	5.99	.01645	60.80	.019	1.0007	520	810	.0210	47.6	3.15	1.151
180	7.51	.01651	60.58	.024	1.0017	530	883	.0212	47.1	3.47	1.164
190	9.34	.01657	60.36	.030	1.0028	540	960	.0215	46.5	3.82	1.181
200	11.53	0.01663	60.12	0.036	1.0039	**550**	1043	0.0218	45.9	4.21	1.200
210	14.12	.01670	59.88	.044	1.0052	560	1131	.0221	45.2	4.62	1.222
220	17.19	.01677	59.63	.053	1.0068	570	1224	.0224	44.6	5.07	1.249
230	20.78	.01684	59.37	.064	1.0085	580	1323	.0227	44.0	5.57	1.281
240	24.97	.01692	59.11	.078	1.0104	590	1429	.0231	43.3	6.11	1.318
250	29.83	0.01700	58.83	0.094	1.0125	**600**	1540	0.0235	42.6	6.70	1.362
260	35.44	.01708	58.55	.112	1.0148	610	1659	.024	41.8	7.35	1.415
270	41.87	.01716	58.26	.133	1.0173	620	1784	.024	41.0	8.1	1.479
280	49.22	.01725	57.96	.157	1.020	630	1917	.025	40.2	8.8	1.559
290	57.57	.01735	57.65	.185	1.023	640	2057	.025	39.2	9.7	1.661
300	67.02	0.01745	57.32	0.217	1.026	**650**	2205	0.026	38.2	10.7	1.793
310	77.68	.01755	56.98	.254	1.029	660	2361	.027	37.2	11.8	.....
320	89.65	.01766	56.62	.295	1.033	670	2526	.028	36.0	13.0	.....
330	103.0	.01778	56.24	.341	1.036	680	2699	.029	34.5	14.5	.....
340	118.0	.01790	55.85	.392	1.040	690	2882	.031	32.6	16.4	.....
350	134.6	0.01803	55.46	0.449	1.044	**700**	3075	0.034	29.7	19.2	.....
360	153.0	.01816	55.06	.513	1.048	706.3	3200	.048	20.9	28.4	

TABLE 6. MIXTURES OF AIR AND SATURATED WATER VAPOR

Temp., °F.	* Pressure of saturated vapor		Weight of saturated vapor				Volume in cu. ft.		Heat content in B.t.u. of 1 lb of dry air above 0° F.	Latent heat of vapor, B.t.u.	† Heat content in B.t.u. of 1 lb. of dry air with vapor to saturate it
			per cu. ft.		per lb. of dry air		of 1 lb. of dry air	of 1 lb. of dry air + vapor to saturate it			
	In. of Hg.	Lb. per sq. in.	Pounds	Grains	Pounds	Grains					
0	0.0375	0.0184	0.0000674	0.472	0.000781	5.47	11.58	11.59	0.0	0.964	0.964
2	.0417	.0204	.0000746	.522	.000869	6.08	11.63	11.65	0.482	1.071	1.553
4	.0462	.0227	.0000823	.576	.000963	6.74	11.68	11.70	0.964	1.186	2.150
6	.0512	.0252	.0000909	.636	.001067	7.47	11.73	11.75	1.446	1.313	2.759
8	.0567	.0279	.0001001	.701	.001183	8.28	11.78	11.80	1.928	1.455	3.383
10	0.0628	0.0308	0.0001103	0.772	0.001309	9.16	11.83	11.86	2.411	1.608	4.019
12	.0694	.0341	.000121	.850	.001447	10.13	11.88	11.91	2.893	1.776	4.669
14	.0766	.0376	.000134	.935	.001599	11.19	11.94	11.97	3.375	1.961	5.336
16	.0846	.0415	.000147	1.028	.001764	12.35	11.99	12.02	3.858	2.162	6.020
18	.0932	.0458	.000161	1.128	.001946	13.62	12.04	12.08	4.340	2.383	6.723
20	0.1027	0.0504	0.000177	1.237	0.002144	15.01	12.09	12.13	4.823	2.623	7.446
22	.1130	.0555	.000194	1.356	.002360	16.52	12.14	12.19	5.305	2.885	8.190
24	.1242	.0610	.000212	1.485	.002596	18.17	12.19	12.24	5.787	3.170	8.957
26	.1365	.0670	.000232	1.625	.002854	19.98	12.24	12.30	6.270	3.482	9.752
28	.1499	.0736	.000254	1.776	.003134	21.94	12.29	12.35	6.752	3.821	10.573
30	0.1646	0.0809	0.000278	1.943	0.003444	24.11	12.34	12.41	7.234	4.195	11.429
32	.1806	.0887	.000303	2.124	.003782	26.47	12.39	12.47	7.716	4.058	11.783
33	.1880	.0923	.000315	2.206	.003938	27.57	12.41	12.49	7.96	4.22	12.18
34	.1957	.0961	.000327	2.292	.004100	28.70	12.44	12.52	8.20	4.40	12.60
35	0.2036	0.1000	0.000340	2.380	0.004268	29.88	12.47	12.55	8.44	4.57	13.02
36	.2119	.1041	.000353	2.471	.004442	31.09	12.49	12.58	8.68	4.76	13.44
37	.2204	.1083	.000367	2.566	.004622	32.35	12.52	12.61	8.93	4.95	13.87
38	.2292	.1126	.000381	2.663	.004809	33.66	12.54	12.64	9.17	5.14	14.31
39	.2384	.1171	.000395	2.764	.005002	35.01	12.57	12.67	9.41	5.35	14.76
40	0.2478	0.1217	0.000410	2.868	0.005202	36.41	12.59	12.70	9.65	5.56	15.21
41	.2576	.1266	.000425	2.976	.005410	37.87	12.62	12.73	9.89	5.78	15.67
42	.2678	.1315	.000441	3.087	.005625	39.38	12.64	12.76	10.14	6.01	16.14
43	.2783	.1367	.000457	3.201	.005848	40.93	12.67	12.79	10.38	6.24	16.62
44	.2891	.1420	.000474	3.319	.006078	42.55	12.69	12.82	10.62	6.48	17.10

* Below 32° F. the pressure of saturated vapor in contact with ice is given. † Values in this column do not include the heat of the liquid. Below 32° F. the heat of sublimation of ice is included.

TABLE 6. MIXTURES OF AIR AND SATURATED WATER VAPOR

Temp., °F.	Pressure of saturated vapor		Weight of saturated vapor				Volume in cu. ft.		Heat content in B.t.u. of 1 lb of dry air above 0° F.	Latent heat of vapor, B.t.u.	* Heat content in B.t.u. of 1 lb. of dry air with vapor to saturate it
			per cu. ft.		per lb. of dry air		of 1 lb. of dry air	of 1 lb. of dry air + vapor to saturate it			
	In. of Hg.	Lb. per sq. in.	Pounds	Grains	Pounds	Grains					
45	0.3003	0.1475	0.000492	3.442	0.00632	44.21	12.72	12.85	10.86	6.73	17.59
46	.3120	.1532	.000510	3.568	.00656	45.94	12.74	12.88	11.10	6.99	18.09
47	.3240	.1591	.000528	3.698	.00682	47.73	12.77	12.91	11.34	7.26	18.60
48	.3364	.1652	.000547	3.832	.00708	49.58	12.79	12.94	11.58	7.54	19.12
49	.3492	.1715	.000567	3.970	.00736	51.49	12.82	12.97	11.83	7.83	19.65
50	0.3624	0.1780	0.000588	4.113	0.00764	53.47	12.84	13.00	12.07	8.12	20.19
51	.3761	.1848	.000609	4.260	.00793	55.52	12.87	13.03	12.31	8.43	20.74
52	.3903	.1917	.000630	4.411	.00823	57.64	12.89	13.07	12.55	8.75	21.30
53	.4049	.1989	.000653	4.568	.00855	59.83	12.92	13.10	12.79	9.08	21.87
54	.4200	.2063	.000676	4.729	.00887	62.09	12.95	13.13	13.03	9.41	22.45
55	0.4356	0.2140	0.000699	4.895	0.00920	64.43	12.97	13.16	13.28	9.76	23.04
56	.4517	.2219	.000724	5.066	.00955	66.85	13.00	13.20	13.52	10.13	23.64
57	.4684	.2300	.000749	5.242	.00991	69.35	13.02	13.23	13.76	10.50	24.25
58	.4855	.2384	.000775	5.424	.01028	71.93	13.05	13.26	14.00	10.89	24.88
59	.5032	.2471	.000802	5.611	.01066	74.60	13.07	13.30	14.24	11.28	25.52
60	0.5214	0.2561	0.000829	5.804	0.01105	77.3	13.10	13.33	14.48	11.69	26.18
61	.5403	.2654	.000858	6.003	.01146	80.2	13.12	13.36	14.72	12.12	26.84
62	.5597	.2749	.000887	6.208	.01188	83.2	13.15	13.40	14.97	12.56	27.52
63	.5798	.2848	.000917	6.418	.01231	86.2	13.17	13.43	15.21	13.01	28.22
64	.6005	.2949	.000948	6.633	.01276	89.3	13.20	13.47	15.45	13.48	28.93
65	0.6218	0.3054	0.000979	6.855	0.01323	92.6	13.22	13.50	15.69	13.96	29.65
66	.6438	.3162	.001012	7.084	.01370	95.9	13.25	13.54	15.93	14.46	30.39
67	.6664	.3273	.001046	7.320	.01420	99.4	13.27	13.58	16.18	14.97	31.15
68	.6898	.3388	.001080	7.563	.01471	103.0	13.30	13.61	16.42	15.50	31.92
69	.7139	.3506	.001116	7.813	.01524	106.6	13.32	13.65	16.66	16.05	32.71
70	0.7386	0.3628	0.001153	8.069	0.01578	110.5	13.35	13.69	16.90	16.61	33.51
71	.7642	.3754	.001190	8.332	.01634	114.4	13.38	13.73	17.14	17.19	34.33
72	.7906	.3883	.001229	8.603	.01692	118.4	13.40	13.76	17.38	17.79	35.17
73	.8177	.4016	.001269	8.882	.01751	122.6	13.43	13.80	17.63	18.41	36.03
74	.8456	.4153	.001310	9.168	.01813	126.9	13.45	13.84	17.87	19.05	36.91

* Values in this column do not include the heat of the liquid.

TABLE 6. MIXTURES OF AIR AND SATURATED WATER VAPOR

Temp., °F.	Pressure of saturated vapor		Weight of saturated vapor				Volume in cu. ft.		Heat content in B.t.u. of 1 lb of dry air above 0° F.	Latent heat of vapor, B.t.u.	* Heat content in B.t.u. of 1 lb. of dry air with vapor to saturate it
			per cu. ft.		per lb. of dry air		of 1 lb. of dry air.	of 1 lb. of dry air + vapor to saturate it			
	In. of Hg.	Lb. per sq. in.	Pounds	Grains	Pounds	Grains					
75	0.8744	0.4295	0.001352	9.46	0.01877	131.4	13.48	13.88	18.11	19.71	37.81
76	.9040	.4440	.001395	9.76	.01942	135.9	13.50	13.92	18.35	20.38	38.73
77	.9345	.4590	.001439	10.07	.02010	140.7	13.53	13.96	18.59	21.08	39.67
78	.9658	.4744	.001485	10.39	.02080	145.6	13.55	14.00	18.84	21.80	40.64
79	.9981	.4903	.001532	10.72	.02152	150.6	13.58	14.05	19.08	22.55	41.63
80	1.0314	0.5066	0.001580	11.06	0.02226	155.8	13.60	14.09	19.32	23.31	42.64
81	1.0656	.5234	.001629	11.40	.02303	161.2	13.63	14.13	19.56	24.11	43.67
82	1.1008	.5406	.001680	11.76	.02381	166.7	13.65	14.17	19.80	24.92	44.72
83	1.1370	.5584	.001732	12.12	.02463	172.4	13.68	14.22	20.04	25.76	45.80
84	1.174	.5767	.001786	12.50	.02547	178.3	13.70	14.26	20.29	26.62	46.91
85	1.212	0.5955	0.001841	12.89	0.02634	184.4	13.73	14.31	20.53	27.51	48.04
86	1.251	.6148	.001897	13.28	.02723	190.6	13.75	14.35	20.77	28.43	49.20
87	1.292	.6347	.001955	13.68	.02815	197.0	13.78	14.40	21.01	29.38	50.39
88	1.334	.6551	.002014	14.10	.02910	203.7	13.80	14.45	21.25	30.35	51.61
89	1.377	.6761	.002075	14.53	.03008	210.6	13.83	14.50	21.50	31.36	52.86
90	1.421	0.6977	0.002137	14.96	0.03109	217.6	13.86	14.55	21.74	32.39	54.13
91	1.466	.7200	.002201	15.41	.03213	224.9	13.88	14.60	21.98	33.46	55.44
92	1.512	.7427	.002267	15.87	.03320	232.4	13.91	14.65	22.22	34.59	56.78
93	1.560	.7660	.002334	16.34	.03430	240.1	13.93	14.70	22.46	35.69	58.15
94	1.609	.7901	.002403	16.82	.03544	247.1	13.96	14.75	22.71	36.86	59.56
95	1.659	0.8148	0.002474	17.32	0.03662	256.3	13.98	14.80	22.95	38.06	61.01
96	1.710	.8401	.002546	17.82	.03783	264.8	14.01	14.86	23.19	39.30	62.48
97	1.763	.8662	.002621	18.35	.03908	273.6	14.03	14.91	23.43	40.57	64.00
98	1.818	.8929	.002697	18.88	.04036	282.5	14.06	14.97	23.67	41.88	65.55
99	1.874	.9204	.002775	19.42	.04169	291.8	14.08	15.02	23.91	43.24	67.15
100	1.931	0.9486	0.002855	19.98	0.04305	301.3	14.11	15.08	24.16	44.63	68.79
101	1.990	0.9775	.002937	20.56	.04446	311.2	14.14	15.14	24.40	46.07	70.47
102	2.051	1.0072	.003021	21.15	.04591	321.4	14.16	15.20	24.64	47.54	72.18
103	2.113	1.0376	.003107	21.75	.04741	331.9	14.19	15.26	24.88	49.07	73.95
104	2.176	1.0689	.003195	22.36	.04895	342.7	14.21	15.33	25.13	50.64	75.77

* Values in this column do not include the heat of the liquid.

TABLE 6. MIXTURES OF AIR AND SATURATED WATER VAPOR

Temp., ° F.	Pressure of saturated vapor		Weight of saturated vapor				Volume in cu. ft.		Heat content in B.t.u. of 1 lb of dry air above 0° F.	Latent heat of vapor, B.t.u.	* Heat content in B.t.u. of 1 lb. of dry air with vapor to saturate it
			per cu. ft.		per lb. of dry air		of 1 lb. of dry air	of 1 lb. of dry air + vapor to saturate it			
	In. of Hg.	Lb. per sq. in.	Pounds	Grains	Pounds	Grains					
105	2.241	1.1010	0.003285	22.99	0.0505	354	14.24	15.39	25.37	52.26	77.63
106	2.308	1.134	.003377	23.64	.0522	365	14.26	15.46	25.61	53.92	79.53
107	2.377	1.168	.003472	24.30	.0539	377	14.29	15.52	25.85	55.64	81.49
108	2.448	1.202	.003568	24.98	.0556	389	14.31	15.59	26.09	57.41	83.50
109	2.520	1.238	.003667	25.67	.0574	402	14.34	15.66	26.33	59.23	85.57
110	2.594	1.274	0.003769	26.38	0.0593	415	14.36	15.73	26.58	61.11	87.69
111	2.670	1.311	.003873	27.11	.0612	428	14.39	15.80	26.82	63.04	89.86
112	2.748	1.350	.003979	27.85	.0631	442	14.41	15.87	27.06	65.04	92.10
113	2.827	1.389	.004087	28.61	.0652	456	14.44	15.95	27.30	67.10	94.40
114	2.909	1.429	.004198	29.39	.0673	471	14.46	16.02	27.55	69.22	96.77
115	2.993	1.470	0.004312	30.18	0.0694	486	14.49	16.10	27.79	71.40	99.10
116	3.079	1.512	.004428	31.00	.0717	502	14.52	16.18	28.03	73.65	101.68
117	3.167	1.555	.004547	31.83	.0739	518	14.54	16.26	28.27	75.97	104.24
118	3.257	1.600	.004669	32.68	.0763	534	14.57	16.35	28.51	78.36	106.87
119	3.349	1.645	.004793	33.55	.0788	551	14.59	16.43	28.76	80.80	109.56
120	3.444	1.692	0.004920	34.44	0.0813	569	14.62	16.52	29.00	83.37	112.37
125	3.952	1.941	.005599	39.19	.0953	667	14.75	16.99	30.21	97.33	127.54
130	4.523	2.221	.006356	44.49	.1114	780	14.88	17.53	31.42	113.64	145.06
135	5.163	2.536	.007197	50.38	.1305	913	15.00	18.13	32.63	132.71	165.34
140	5.878	2.887	.008130	56.91	.1532	1072	15.13	18.84	33.85	155.37	189.22
145	6.677	3.280	0.00916	64.1	0.1800	1260	15.26	19.64	35.06	182.05	217.1
150	7.566	3.716	.01030	72.1	.2122	1485	15.39	20.60	36.27	214.03	250.3
155	8.554	4.201	.01156	80.9	.2511	1758	15.52	21.73	37.48	252.61	290.1
160	9.649	4.739	.01294	90.6	.2987	2091	15.64	23.09	38.69	299.55	338.2
165	10.860	5.334	.01445	101.1	.3577	2504	15.77	24.75	39.91	357.75	397.7
170	12.20	5.990	0.01611	112.8	0.4324	....	15.90	26.84	41.12	431.2	472.3
175	13.67	6.71	.01793	125.5	.5290	....	16.03	29.51	42.33	526.0	568.3
180	15.29	7.51	.01991	139.4	.6577	....	16.16	33.04	43.55	651.9	695.5
185	17.07	8.38	.02206	154.4	.8359	....	16.28	37.89	44.76	826.1	870.9
190	19.01	9.34	.02441	170.9	1.0985	....	16.41	45.00	45.97	1082.3	1128.3
200	23.46	11.53	0.02972	208.0	2.2953	....	16.67	77.24	48.40	2247.5	2296

* Values in this column do not include the heat of the liquid.

Pressure, lb.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy.		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ.	u″	s′	r/T	s″
1	−103.7	225.0	0.0044	.....	....	644.6	603.0	....	.....	1.8107	.....
2	− 87.1	117.0	.0085	.....	....	633.9	590.7	....	.....	1.7017	.....
3	− 76.5	80.0	.0125	.....	....	626.9	582.7	....	.....	1.6363	.....
4	− 68.5	61.0	.0164	.....	....	621.6	576.5	....	.....	1.5891	.....
5	− 62.0	49.3	0.0203	−98.1	519.1	617.2	571.5	473.4	−0.2207	1.5523	1.3316
6	− 56.6	41.6	.0241	−92.5	521.1	613.5	567.3	474.9	− .2070	1.5223	1.3153
7	− 51.9	35.9	.0279	−87.6	522.7	610.2	563.7	476.1	− .1947	1.4965	1.3018
8	− 47.6	31.6	.0316	−83.2	524.1	607.3	560.4	477.1	− .1840	1.4740	1.2900
9	− 43.9	28.3	.0352	−79.3	525.3	604.7	557.4	478.0	− .1747	1.4541	1.2794
10	− 40.4	25.75	0.0388	−75.7	526.4	602.2	554.6	478.8	−0.1661	1.4363	1.2702
11	− 37.2	23.60	.0424	−72.4	527.4	599.9	552.0	479.5	− .1584	1.4202	1.2618
12	− 34.3	21.75	.0460	−69.4	528.4	597.8	549.6	480.2	− .1513	1.4054	1.2541
13	− 31.5	20.16	.0496	−66.5	529.3	595.8	547.4	480.9	− .1446	1.3917	1.2471
14	− 28.9	18.79	.0532	−63.8	530.1	593.9	545.3	481.5	− .1384	1.3789	1.2405
15	− 26.4	17.60	0.0568	−61.2	530.9	592.1	543.3	482.0	−0.1324	1.3669	1.2345
16	− 24.1	16.56	.0604	−58.8	531.6	590.4	541.4	482.5	− .1268	1.3557	1.2289
17	− 21.9	15.64	.0639	−56.5	532.2	588.8	539.6	483.0	− .1215	1.3451	1.2236
18	− 19.8	14.82	.0675	−54.4	532.8	587.2	537.9	483.4	− .1165	1.3351	1.2186
19	− 17.8	14.09	.0710	−52.3	533.4	585.7	536.3	483.9	− .1119	1.3257	1.2138
20	− 15.9	13.45	0.0744	−50.3	534.0	584.3	534.7	484.3	−0.1075	1.3168	1.2093
21	− 14.0	12.82	.0780	−48.4	534.6	582.9	533.1	484.7	− .1032	1.3082	1.2050
22	− 12.2	12.27	.0815	−46.5	535.1	581.5	531.6	485.1	− .0990	1.2999	1.2009
23	− 10.5	11.77	.0850	−44.7	535.6	580.2	530.2	485.4	− .0950	1.2920	1.1970
24	− 8.8	11.30	.0885	−42.9	536.1	579.0	528.8	485.8	− .0912	1.2844	1.1932
25	− 7.2	10.88	0.0919	−41.3	536.5	577.8	527.4	486.1	−0.0876	1.2771	1.1896
26	− 5.7	10.50	.0953	−39.7	536.9	576.6	526.1	486.4	− .0840	1.2701	1.1862
27	− 4.2	10.13	.0987	−38.1	537.4	575.4	524.9	486.7	− .0805	1.2634	1.1829
28	− 2.7	9.78	.1022	−36.5	537.8	574.3	523.7	487.0	− .0771	1.2569	1.1798
29	− 1.3	9.47	.1056	−35.0	538.2	573.2	522.5	487.3	− .0739	1.2507	1.1768
30	+ 0.1	9.17	0.1090	−33.6	538.5	572.1	521.3	487.6	−0.0708	1.2447	1.1739
31	1.4	8.90	.1124	−32.2	538.9	571.1	520.2	487.8	− .0677	1.2389	1.1712
32	2.7	8.64	.1158	−30.8	539.3	570.1	519.1	488.1	− .0647	1.2332	1.1685
33	4.0	8.39	.1192	−29.5	539.6	569.1	518.0	488.4	− .0617	1.2275	1.1658
34	5.3	8.15	.1226	−28.2	540.0	568.1	516.9	488.6	− .0589	1.2220	1.1631
35	6.5	7.93	0.1260	−26.9	540.3	567.1	515.8	488.8	−0.0561	1.2167	1.1606
36	7.7	7.73	.1294	−25.6	540.6	566.2	514.8	489.1	− .0534	1.2116	1.1581
37	8.9	7.52	.1328	−24.4	540.9	565.3	513.8	489.3	− .0508	1.2066	1.1558
38	10.0	7.34	.1362	−23.2	541.2	564.4	512.8	489.5	− .0483	1.2018	1.1535
39	11.1	7.16	.1396	−22.0	541.5	563.5	511.9	489.7	− .0458	1.1971	1.1513
40	12.2	6.99	0.1430	−20.8	541.8	562.6	511.0	489.9	−0.0433	1.1924	1.1491
41	13.3	6.82	.1464	−19.7	542.0	561.7	510.0	490.1	− .0409	1.1878	1.1469
42	14.4	6.67	.1497	−18.6	542.3	560.9	509.1	490.3	− .0386	1.1833	1.1448
43	15.4	6.52	.1531	−17.5	542.6	560.0	508.2	490.5	− .0363	1.1790	1.1427
44	16.4	6.38	.1564	−16.4	542.8	559.2	507.3	490.7	− .0341	1.1748	1.1407
45	17.4	6.25	0.1598	−15.3	543.1	558.4	506.4	490.9	−0.0319	1.1707	1.1388
46	18.4	6.12	.1631	−14.3	543.3	557.6	505.6	491.1	− .0297	1.1666	1.1369
47	19.4	6.00	.1665	−13.3	543.6	556.8	504.7	491.3	− .0276	1.1626	1.1350
48	20.3	5.88	.1698	−12.3	543.8	556.1	503.9	491.4	− .0255	1.1587	1.1332
49	21.2	5.77	.1732	−11.3	544.0	555.3	503.1	491.6	− .0235	1.1549	1.1314
50	22.1	5.66	0.1765	−10.3	544.3	554.6	502.3	491.8	−0.0216	1.1512	1.1297
51	23.0	5.56	.1798	− 9.3	544.5	553.9	501.5	491.9	− .0196	1.1476	1.1280
52	23.9	5.46	.1831	− 8.4	544.7	553.1	500.8	492.1	− .0177	1.1441	1.1264
53	24.8	5.36	.1865	− 7.5	544.9	552.4	500.0	492.3	− .0158	1.1406	1.1247
54	25.6	5.27	.1898	− 6.6	545.1	551.7	499.3	492.4	− .0140	1.1372	1.1231

Pressure, lb.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
55	26.4	5.18	0.1931	−5.7	545.3	551.1	498.6	492.6	−0.0122	1.1338	1.1216
56	27.3	5.09	.1964	−4.8	545.5	550.4	497.8	492.7	.0103	1.1304	1.1201
57	28.1	5.01	.1997	−3.9	545.7	549.7	497.1	492.9	.0085	1.1271	1.1186
58	28.9	4.93	.2030	−3.0	545.9	549.0	496.4	493.0	.0068	1.1239	1.1171
59	29.7	4.85	.2063	−2.2	546.1	548.4	495.7	493.2	.0050	1.1207	1.1157
60	30.5	4.77	0.2096	−1.3	546.3	547.7	495.0	493.3	−0.0033	1.1175	1.1142
61	31.3	4.70	.2129	−0.5	546.5	547.0	494.3	493.5	−0.0016	1.1144	1.1128
62	32.1	4.63	.2162	+0.3	546.7	546.4	493.6	493.6	+0.0001	1.1113	1.1114
63	32.8	4.56	.2195	1.1	546.9	545.8	492.9	493.7	.0018	1.1083	1.1101
64	33.6	4.49	.2228	1.9	547.1	545.1	492.2	493.9	.0035	1.1053	1.1087
65	34.3	4.42	0.2261	2.7	547.2	544.5	491.6	494.0	0.0051	1.1023	1.1074
66	35.1	4.36	.2294	3.5	547.4	543.8	490.9	494.1	.0067	1.0994	1.1061
67	35.8	4.30	.2327	4.3	547.6	543.2	490.3	494.3	.0082	1.0966	1.1048
68	36.5	4.24	.2359	5.1	547.7	542.6	489.6	494.4	.0097	1.0939	1.1036
69	37.2	4.18	.2392	5.8	547.9	542.0	489.0	494.5	.0113	1.0911	1.1024
70	37.9	4.12	0.2425	6.6	548.1	541.4	488.4	494.6	0.0128	1.0883	1.1011
71	38.6	4.07	.2458	7.4	548.2	540.8	487.7	494.8	.0143	1.0856	1.0999
72	39.3	4.02	.2490	8.1	548.4	540.2	487.1	494.9	.0158	1.0829	1.0987
73	40.0	3.96	.2523	8.9	548.5	539.6	486.5	495.0	.0173	1.0802	1.0975
74	40.7	3.91	.2556	9.6	548.7	539.0	485.9	495.1	.0187	1.0776	1.0963
75	41.3	3.86	0.2589	10.3	548.8	538.5	485.3	495.2	0.0201	1.0751	1.0952
76	42.0	3.81	.2622	11.0	549.0	537.9	484.7	495.3	.0215	1.0726	1.0941
77	42.6	3.77	.2655	11.7	549.1	537.4	484.1	495.4	.0229	1.0701	1.0930
78	43.3	3.72	.2688	12.4	549.3	536.8	483.5	495.6	.0243	1.0676	1.0919
79	43.9	3.68	.2721	13.1	549.4	536.3	482.9	495.7	.0257	1.0651	1.0908
80	44.5	3.63	0.2753	13.8	549.5	535.8	482.3	495.8	0.0271	1.0627	1.0898
81	45.1	3.59	.2786	14.5	549.7	535.2	481.8	495.9	.0284	1.0603	1.0888
82	45.8	3.55	.2819	15.2	549.8	534.6	481.2	496.0	.0297	1.0580	1.0877
83	46.4	3.51	.2851	15.8	550.0	534.1	480.6	496.1	.0310	1.0557	1.0867
84	47.0	3.47	.2884	16.5	550.1	533.6	480.1	496.2	.0323	1.0534	1.0857
85	47.6	3.43	0.2917	17.2	550.2	533.1	479.5	496.3	0.0336	1.0511	1.0847
86	48.2	3.39	.2950	17.8	550.4	532.5	479.0	496.4	.0349	1.0488	1.0837
87	48.8	3.35	.2983	18.5	550.5	532.0	478.4	496.5	.0362	1.0465	1.0827
88	49.4	3.32	.3015	19.1	550.6	531.5	477.9	496.6	.0374	1.0443	1.0817
89	50.0	3.28	.3048	19.8	550.8	531.0	477.3	496.7	.0386	1.0421	1.0807
90	50.5	3.25	0.3081	20.4	550.9	530.5	476.8	496.8	0.0398	1.0400	1.0798
91	51.1	3.21	.3114	21.0	551.0	530.0	476.3	496.9	.0410	1.0379	1.0789
92	51.7	3.18	.3147	21.7	551.1	529.5	475.8	497.0	.0422	1.0358	1.0780
93	52.2	3.14	.3180	22.3	551.2	529.0	475.3	497.1	.0434	1.0337	1.0771
94	52.8	3.11	.3213	22.9	551.4	528.5	474.8	497.2	.0446	1.0316	1.0762
95	53.3	3.08	0.3246	23.5	551.5	528.0	474.3	497.3	0.0458	1.0295	1.0753
96	53.9	3.05	.3278	24.1	551.6	527.5	473.8	497.4	.0470	1.0274	1.0744
97	54.4	3.02	.3311	24.7	551.7	527.0	473.3	497.4	.0482	1.0254	1.0736
98	55.0	2.99	.3344	25.3	551.9	526.5	472.8	497.5	.0494	1.0234	1.0727
99	55.5	2.96	.3377	25.9	552.0	526.1	472.3	497.6	.0505	1.0214	1.0719
100	56.0	2.93	0.3409	26.5	552.1	525.6	471.8	497.7	0.0516	1.0195	1.0710
101	56.6	2.90	.3442	27.1	552.2	525.1	471.3	497.8	.0527	1.0175	1.0702
102	57.1	2.88	.3475	27.7	552.3	524.6	470.8	497.9	.0539	1.0155	1.0694
103	57.6	2.85	.3508	28.2	552.4	524.2	470.3	498.0	.0550	1.0136	1.0686
104	58.1	2.82	.3540	28.8	552.5	523.7	469.8	498.1	.0561	1.0117	1.0678
105	58.6	2.80	0.3573	29.3	552.6	523.3	469.3	498.1	0.0572	1.0098	1.0670
106	59.1	2.77	.3605	29.9	552.7	522.8	468.9	498.2	.0583	1.0079	1.0662
107	59.6	2.75	.3638	30.4	552.8	522.4	468.4	498.3	.0594	1.0061	1.0654
108	60.1	2.72	.3670	31.0	552.9	521.9	467.9	498.4	.0604	1.0043	1.0647
109	60.6	2.70	.3703	31.5	553.0	521.5	467.5	498.5	.0614	1.0025	1.0639

Pressure, lb.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
110	61.1	2.678	0.3735	32.1	553.1	521.0	467.0	498.6	0.0625	1.0006	1.0631
111	61.6	2.655	.3767	32.6	553.2	520.6	466.5	498.6	.0636	0.9988	1.0624
112	62.1	2.632	.3799	33.2	553.3	520.1	466.1	498.7	.0646	.9970	1.0616
113	62.6	2.610	.3831	33.7	553.4	519.7	465.6	498.8	.0657	.9951	1.0608
114	63.1	2.589	.3863	34.3	553.5	519.2	465.1	498.9	.0668	.9933	1.0601
115	63.6	2.568	0.3895	34.8	553.6	518.8	464.6	499.0	0.0678	0.9916	1.0594
116	64.0	2.547	.3927	35.4	553.7	518.4	464.2	499.0	.0688	.9899	1.0587
117	64.5	2.526	.3959	35.9	553.8	517.9	463.8	499.1	.0697	.9883	1.0580
118	64.9	2.506	.3991	36.4	553.9	517.5	463.4	499.2	.0706	.9867	1.0573
119	65.4	2.486	.4023	36.9	554.0	517.1	462.9	499.3	.0716	.9850	1.0566
120	65.8	2.466	0.4056	37.4	554.1	516.7	462.5	499.4	0.0725	0.9834	1.0559
121	66.3	2.446	.4089	37.9	554.2	516.3	462.1	499.4	.0735	.9817	1.0552
122	66.8	2.427	.4121	38.5	554.3	515.8	461.6	499.5	.0745	.9800	1.0545
123	67.2	2.409	.4153	39.0	554.4	515.4	461.2	499.6	.0754	.9784	1.0539
124	67.7	2.390	.4185	39.5	554.5	515.0	460.8	499.7	.0764	.9768	1.0532
125	68.1	2.371	0.4218	40.0	554.6	514.6	460.4	499.7	0.0773	0.9752	1.0525
126	68.6	2.353	.4250	40.5	554.7	514.1	459.9	499.8	.0783	.9736	1.0519
127	69.0	2.335	.4283	41.0	554.8	513.7	459.5	499.9	.0792	.9720	1.0512
128	69.5	2.317	.4316	41.5	554.9	513.3	459.0	500.0	.0802	.9704	1.0505
129	69.9	2.300	.4348	42.0	555.0	512.9	458.6	500.0	.0811	.9688	1.0499
130	70.4	2.283	0.4381	42.5	555.0	512.5	458.2	500.1	0.0820	0.9672	1.0492
131	70.8	2.266	.4414	43.0	555.1	512.1	457.8	500.2	.0829	.9656	1.0485
132	71.2	2.249	.4447	43.5	555.2	511.7	457.4	500.2	.0838	.9641	1.0479
133	71.6	2.233	.4479	44.0	555.3	511.3	457.0	500.3	.0847	.9626	1.0473
134	72.0	2.217	.4511	44.5	555.4	510.9	456.6	500.4	.0856	.9611	1.0467
135	72.5	2.201	0.4544	45.0	555.5	510.5	456.2	500.5	0.0865	0.9596	1.0461
136	72.9	2.185	.4577	45.5	555.6	510.1	455.8	500.5	.0874	.9581	1.0455
137	73.3	2.169	.4610	46.0	555.6	509.7	455.4	500.6	.0883	.9566	1.0449
138	73.7	2.154	.4643	46.4	555.7	509.4	455.0	500.7	.0892	.9551	1.0443
139	74.1	2.139	.4675	46.9	555.8	509.0	454.6	500.7	.0901	.9536	1.0437
140	74.5	2.124	0.4707	47.3	555.9	508.6	454.2	500.8	0.0910	0.9521	1.0431
141	75.0	2.109	.4740	47.8	556.0	508.2	453.8	500.9	.0919	.9506	1.0425
142	75.4	2.095	.4772	48.3	556.1	507.8	453.4	500.9	.0928	.9491	1.0419
143	75.8	2.082	.4804	48.8	556.1	507.4	453.0	501.0	.0936	.9477	1.0413
144	76.2	2.069	.4835	49.2	556.2	507.0	452.6	501.1	.0944	.9463	1.0407
145	76.5	2.056	0.4867	49.6	556.3	506.7	452.2	501.1	0.0952	0.9450	1.0402
146	76.9	2.043	.4899	50.0	556.4	506.3	451.8	501.2	.0960	.9436	1.0396
147	77.3	2.029	.4931	50.5	556.4	506.0	451.4	501.2	.0968	.9423	1.0391
148	77.7	2.015	.4963	50.9	556.5	505.6	451.0	501.3	.0976	.9410	1.0386
149	78.1	2.002	.4995	51.4	556.6	505.2	450.7	501.4	.0985	.9396	1.0380
150	78.5	1.989	0.5028	51.8	556.7	504.8	450.3	501.4	0.0993	0.9382	1.0375
151	78.9	1.976	.5060	52.3	556.7	504.4	449.9	501.5	.1002	.9368	1.0369
152	79.3	1.964	.5092	52.7	556.8	504.0	449.5	501.6	.1010	.9354	1.0364
153	79.6	1.952	.5123	53.1	556.9	503.7	449.2	501.6	.1018	.9341	1.0359
154	80.0	1.940	.5155	53.6	557.0	503.3	448.8	501.7	.1026	.9328	1.0354
155	80.4	1.928	0.5187	54.0	557.0	503.0	448.4	501.7	0.1034	0.9314	1.0348
156	80.8	1.916	.5220	54.5	557.1	502.6	448.0	501.8	.1042	.9301	1.0343
157	81.2	1.904	.5253	54.9	557.2	502.2	447.6	501.8	.1050	.9288	1.0338
158	81.5	1.892	.5286	55.3	557.2	501.9	447.3	501.9	.1058	.9275	1.0333
159	81.9	1.880	.5320	55.8	557.3	501.5	446.9	502.0	.1066	.9262	1.0328
160	82.3	1.868	0.5353	56.2	557.4	501.1	446.6	502.1	0.1074	0.9249	1.0323
161	82.7	1.857	.5386	56.7	557.5	500.7	446.2	502.1	.1082	.9236	1.0318
162	83.0	1.846	.5418	57.1	557.5	500.4	445.9	502.2	.1090	.9223	1.0313
163	83.4	1.835	.5450	57.5	557.6	500.0	445.5	502.2	.1098	.9210	1.0308
164	83.8	1.824	.5483	58.0	557.7	499.7	445.1	502.3	.1106	.9197	1.0303

Pressure, lb.	Temp., °F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
165	84.1	1.814	0.5515	58.4	557.7	499.4	444.8	502.3	0.1114	0.9184	1.0298
166	84.5	1.803	.5547	58.8	557.8	499.0	444.4	502.4	.1122	.9171	1.0293
167	84.9	1.793	.5578	59.3	557.9	498.6	444.0	502.5	.1130	.9158	1.0288
168	85.2	1.783	.5609	59.7	558.0	498.3	443.7	502.5	.1137	.9146	1.0283
169	85.6	1.773	.5641	60.1	558.0	497.9	443.3	502.6	.1145	.9133	1.0278
170	85.9	1.763	0.5673	60.5	558.1	497.6	443.0	502.7	0.1152	0.9121	1.0273
171	86.3	1.753	.5705	61.0	558.2	497.2	442.6	502.7	.1160	.9108	1.0268
172	86.6	1.743	.5738	61.4	558.2	496.9	442.3	502.8	.1167	.9096	1.0264
173	87.0	1.733	.5771	61.8	558.3	496.5	441.9	502.8	.1175	.9084	1.0259
174	87.3	1.723	.5804	62.2	558.4	496.2	441.6	502.9	.1182	.9072	1.0254
175	87.7	1.713	0.5836	62.6	558.4	495.8	441.2	502.9	0.1190	0.9060	1.0250
176	88.0	1.704	.5869	63.0	558.5	495.5	440.9	503.0	.1197	.9048	1.0245
177	88.4	1.694	.5902	63.4	558.6	495.1	440.5	503.0	.1204	.9037	1.0241
178	88.7	1.685	.5935	63.8	558.6	494.8	440.2	503.1	.1211	.9025	1.0236
179	89.0	1.676	.5967	64.2	558.7	494.5	439.9	503.1	.1218	.9013	1.0232
180	89.4	1.666	0.6000	64.6	558.8	494.1	439.5	503.2	0.1226	0.9001	1.0227
181	89.7	1.656	.6034	65.0	558.8	493.8	439.2	503.3	.1233	.8989	1.0223
182	90.1	1.647	.6068	65.4	558.9	493.4	438.8	503.3	.1241	.8977	1.0218
183	90.4	1.639	.6102	65.8	558.9	493.1	438.5	503.4	.1248	.8966	1.0214
184	90.7	1.630	.6135	66.2	559.0	492.8	438.2	503.4	.1254	.8955	1.0210
185	91.1	1.621	0.6168	66.6	559.1	492.4	437.8	503.5	0.1261	0.8944	1.0205
186	91.4	1.613	.6200	67.0	559.1	492.1	437.5	503.5	.1268	.8933	1.0201
187	91.7	1.605	.6233	67.4	559.2	491.8	437.2	503.6	.1274	.8921	1.0196
188	92.1	1.596	.6266	67.8	559.3	491.5	436.8	503.6	.1283	.8909	1.0192
189	92.4	1.588	.6298	68.2	559.3	491.2	436.5	503.7	.1289	.8898	1.0187
190	92.7	1.580	0.6330	68.6	559.4	490.9	436.2	503.7	0.1296	0.8887	1.0183
191	93.0	1.572	.6362	68.9	559.4	490.5	435.9	503.8	.1303	.8876	1.0179
192	93.4	1.563	.6395	69.3	559.5	490.1	435.5	503.9	.1310	.8865	1.0174
193	93.7	1.555	.6428	69.7	559.6	489.8	435.2	503.9	.1317	.8854	1.0170
194	94.0	1.548	.6460	70.1	559.6	489.5	434.9	504.0	.1323	.8843	1.0166
195	94.3	1.541	0.649	70.5	559.7	489.2	434.5	504.0	0.1329	0.8833	1.0162
196	94.6	1.533	.652	70.8	559.7	488.9	434.2	504.1	.1336	.8822	1.0158
197	94.9	1.526	.655	71.2	559.8	488.6	433.9	504.1	.1342	.8812	1.0154
198	95.2	1.519	.658	71.6	559.8	488.3	433.6	504.2	.1349	.8801	1.0150
199	95.5	1.512	.661	71.9	559.9	488.0	433.3	504.2	.1356	.8790	1.0146
200	95.9	1.504	0.665	72.3	560.0	487.6	433.0	504.3	0.1363	0.8779	1.0142
202	96.5	1.489	.672	73.1	560.1	487.0	432.3	504.4	.1376	.8758	1.0134
204	97.1	1.474	.679	73.8	560.2	486.4	431.7	504.5	.1389	.8737	1.0126
206	97.7	1.460	.685	74.6	560.3	485.8	431.1	504.6	.1402	.8716	1.0118
208	98.3	1.447	.691	75.3	560.4	485.1	430.5	504.7	.1414	.8696	1.0110
210	98.9	1.433	0.698	76.0	560.5	484.5	429.8	504.8	0.1427	0.8676	1.0103
212	99.5	1.419	.705	76.7	560.6	483.9	429.2	504.9	.1440	.8656	1.0095
214	100.1	1.406	.711	77.4	560.7	483.3	428.6	505.0	.1452	.8636	1.0088
216	100.7	1.394	.717	78.1	560.8	482.7	428.0	505.0	.1464	.8616	1.0080
218	101.2	1.382	.724	78.8	560.9	482.1	427.4	505.1	.1476	.8597	1.0073
220	101.8	1.370	0.730	79.5	561.0	481.5	426.8	505.2	0.1488	0.8578	1.0066
222	102.4	1.358	.736	80.2	561.1	480.9	426.2	505.3	.1500	.8559	1.0059
224	103.0	1.346	.743	80.9	561.2	480.3	425.6	505.4	.1512	.8540	1.0052
226	103.5	1.335	.749	81.6	561.3	479.7	425.1	505.5	.1524	.8521	1.0045
228	104.1	1.323	.756	82.3	561.4	479.1	424.5	505.6	.1537	.8501	1.0038
230	104.7	1.312	0.762	83.0	561.5	478.5	423.9	505.7	0.1549	0.8482	1.0031
232	105.2	1.301	.769	83.7	561.6	477.9	423.3	505.8	.1561	.8463	1.0024
234	105.8	1.290	.775	84.4	561.7	477.3	422.7	505.9	.1573	.8444	1.0017
236	106.3	1.279	.782	85.0	561.8	476.8	422.2	505.9	.1585	.8426	1.0011
238	106.9	1.268	.789	85.7	561.9	476.2	421.6	506.0	.1597	.8407	1.0004

Pressure, lb.	Temp., ° F.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
p	t	v′′	1/v′′	i′	i′′	r	ρ	u′′	s′	r/T	s′′
240	107.4	1.258	0.795	86.4	562.0	475.6	421.0	506.1	0.1609	0.8389	0.9998
242	108.0	1.248	.801	87.1	562.1	475.0	420.4	506.2	.1621	.8371	.9991
244	108.5	1.238	.808	87.7	562.2	474.5	419.8	506.3	.1632	.8353	.9985
246	109.0	1.228	.814	88.4	562.3	473.9	419.3	506.4	.1643	.8335	.9979
248	109.6	1.218	.821	89.1	562.4	473.3	418.7	506.5	.1655	.8317	.9972
250	110.1	1.208	0.828	89.7	562.5	472.8	418.1	506.6	0.1666	0.8300	0.9966
252	110.6	1.199	.834	90.4	562.6	472.2	417.6	506.6	.1677	.8283	.9960
254	111.1	1.189	.841	91.0	562.6	471.6	417.1	506.7	.1688	.8266	.9954
256	111.7	1.179	.848	91.7	562.7	471.0	416.5	506.8	.1700	.8248	.9947
258	112.2	1.170	.855	92.3	562.8	470.5	415.9	506.9	.1711	.8231	.9941
260	112.7	1.161	0.861	93.0	562.9	470.0	415.4	507.0	0.1722	0.8213	0.9935
262	113.2	1.153	.867	93.6	563.0	469.4	414.8	507.1	.1733	.8196	.9929
264	113.7	1.144	.874	94.2	563.1	468.9	414.3	507.2	.1744	.8179	.9923
266	114.2	1.136	.880	94.8	563.2	468.3	413.8	507.2	.1755	.8162	.9917
268	114.7	1.127	.887	95.5	563.3	467.8	413.2	507.3	.1766	.8145	.9911
270	115.2	1.119	0.894	96.1	563.4	467.2	412.7	507.4	0.1777	0.8129	0.9906
272	115.7	1.110	.901	96.7	563.4	466.7	412.2	507.5	.1787	.8113	.9900
274	116.2	1.102	.908	97.4	563.5	466.1	411.7	507.6	.1798	.8096	.9894
276	116.7	1.094	.914	98.0	563.6	465.6	411.2	507.7	.1809	.8080	.9888
278	117.1	1.087	.920	98.6	563.7	465.1	410.7	507.7	.1819	.8064	.9883
280	117.6	1.079	0.927	99.2	563.8	464.6	410.2	507.8	0.1829	0.8048	0.9878
282	118.1	1.071	.934	99.8	563.9	464.0	409.6	507.9	.1840	.8032	.9872
284	118.6	1.063	.941	100.4	563.9	463.5	409.1	508.0	.1850	.8016	.9867
286	119.1	1.056	.947	101.1	564.0	462.9	408.5	508.1	.1861	.8000	.9861
288	119.6	1.049	.953	101.7	564.1	462.4	408.0	508.2	.1872	.7984	.9856
290	120.0	1.042	0.960	102.3	564.2	461.9	407.5	508.2	0.1882	0.7969	0.9851
292	120.5	1.035	.966	102.9	564.3	461.4	407.0	508.3	.1892	.7954	.9846
294	120.9	1.028	.973	103.5	564.3	460.9	406.5	508.4	.1902	.7939	.9841
296	121.4	1.021	.980	104.1	564.4	460.4	406.0	508.5	.1912	.7924	.9836
298	121.9	1.014	.986	104.7	564.5	459.8	405.5	508.6	.1922	.7908	.9830
300	122.4	1.007	0.993	105.3	564.6	459.3	405.0	508.7	0.1932	0.7893	0.9825
310	124.6	0.975	1.026	108.2	565.0	456.8	402.5	509.0	.1981	.7820	.9801
320	126.8	.945	1.059	111.1	565.3	454.3	400.0	509.4	.2030	.7747	.9777
330	129.0	.916	1.092	114.0	565.7	451.8	397.6	509.8	.2078	.7676	.9754
340	131.1	.889	1.125	116.8	566.1	449.3	395.2	510.1	.2125	.7606	.9731
350	133.2	0.863	1.159	119.6	566.4	446.8	392.8	510.5	0.2171	0.7538	0.9709
360	135.2	.838	1.193	122.3	566.7	444.4	390.5	510.8	.2216	.7472	.9688
370	137.2	.815	1.227	125.0	567.0	442.0	388.2	511.2	.2261	.7407	.9668
380	139.2	.793	1.261	127.7	567.3	439.6	385.9	511.5	.2305	.7343	.9648
390	141.1	.772	1.295	130.3	567.6	437.3	383.7	511.9	.2348	.7281	.9629
400	142.9	0.752	1.330	132.9	567.9	435.0	381.5	512.2	0.2390	0.7220	0.9610
410	144.8	.733	1.364	135.5	568.2	432.7	379.3	512.5	.2431	.7161	.9592
420	146.6	.715	1.399	138.1	568.5	430.4	377.2	512.8	.2472	.7102	.9574
430	148.4	.698	1.434	140.6	568.8	428.2	375.0	513.2	.2513	.7044	.9557
440	150.1	.681	1.469	143.1	569.0	426.0	372.9	513.5	.2553	.6987	.9540
450	151.8	0.665	1.504	145.6	569.3	423.8	370.8	513.8	0.2593	0.6931	0.9524
460	153.5	.650	1.539	148.0	569.6	421.6	368.7	514.1	.2632	.6876	.9508
470	155.2	.636	1.574	150.4	569.8	419.4	366.6	514.4	.2671	.6822	.9493
480	156.9	.622	1.608	152.8	570.1	417.2	364.5	514.7	.2710	.6768	.9478
490	158.5	.609	1.642	155.2	570.3	415.0	362.5	515.0	.2748	.6715	.9464
500	160.0	0.597	1.675	157.5	570.5	413.0	360.5	515.3	0.2786	0.6664	0.9450
525	163.9	.566	1.765	163.4	571.1	407.7	355.6	516.0	.2876	.6540	.9416
550	167.6	.539	1.855	169.2	571.7	402.5	350.8	516.7	.2965	.6419	.9384
575	171.2	.514	1.946	174.8	572.2	397.4	346.0	517.4	.3052	.6301	.9353
600	174.7	0.491	2.038	180.4	572.7	392.3	341.3	518.1	0.3138	0.6186	0.9324
625	178.1	.469	2.132	185.9	573.1	387.2	336.6	518.8	.3223	.6073	.9296
650	181.4	.449	2.227	191.4	573.6	382.2	332.0	519.5	.3307	.5963	.9270
675	184.6	.431	2.321	196.8	574.0	377.2	327.4	520.1	.3389	.5856	.9245
700	187.7	.414	2.416	202.1	574.4	372.2	322.8	520.7	.3469	.5752	.9221

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v''	$1/v''$	i'	i''	r	ρ	u''	s'	r/T	s''
−50	7.43	34.01	0.02940	−85.7	523.3	608.9	562.2	476.5	−0.1901	1.4866	1.2965
−49	7.67	32.98	.03032	−84.7	523.6	608.2	561.4	476.7	− .1875	1.4812	1.2937
−48	7.92	32.00	.03125	−83.6	523.9	607.5	560.6	476.9	− .1850	1.4759	1.2909
−47	8.17	31.07	.03218	−82.6	524.3	606.8	559.8	477.2	− .1825	1.4706	1.2881
−46	8.43	30.19	.03312	−81.5	524.6	606.1	559.0	477.4	− .1801	1.4654	1.2854
−45	8.69	29.34	0.03408	−80.5	524.9	605.4	558.2	477.6	−0.1776	1.4602	1.2826
−44	8.96	28.52	.03506	−79.5	525.3	604.7	557.4	477.9	− .1751	1.4550	1.2798
−43	9.24	27.72	.03607	−78.4	525.6	604.0	556.6	478.2	− .1727	1.4498	1.2771
−42	9.53	26.94	.03712	−77.4	525.9	603.3	555.8	478.4	− .1702	1.4446	1.2744
−41	9.82	26.18	.03820	−76.4	526.2	602.6	555.0	478.6	− .1678	1.4395	1.2717
−40	10.12	25.45	0.03930	−75.3	526.6	601.9	554.2	478.9	−0.1653	1.4344	1.2691
−39	10.43	24.74	.04042	−74.3	526.9	601.2	553.4	479.1	− .1628	1.4293	1.2664
−38	10.75	24.06	.04156	−73.3	527.2	600.5	552.6	479.3	− .1604	1.4242	1.2638
−37	11.07	23.40	.04273	−72.2	527.5	599.7	551.8	479.6	− .1580	1.4191	1.2612
−36	11.40	22.76	.04393	−71.2	527.9	599.0	551.0	479.8	− .1555	1.4141	1.2586
−35	11.74	22.14	0.04516	−70.2	528.2	598.3	550.2	480.0	−0.1531	1.4091	1.2560
−34	12.09	21.55	.04641	−69.1	528.5	597.6	549.4	480.3	− .1507	1.4041	1.2534
−33	12.45	20.97	.04769	−68.1	528.8	596.9	548.6	480.5	− .1483	1.3991	1.2508
−32	12.81	20.41	.04900	−67.1	529.1	596.1	547.8	480.7	− .1458	1.3941	1.2483
−31	13.18	19.87	.05033	−66.0	529.4	595.4	547.0	481.0	− .1434	1.3892	1.2458
−30	13.56	19.35	0.05168	−65.0	529.8	594.7	546.2	481.2	−0.1410	1.3843	1.2433
−29	13.95	18.84	.05306	−63.9	530.1	594.0	545.4	481.4	− .1386	1.3794	1.2408
−28	14.35	18.35	.05449	−62.9	530.4	593.2	544.6	481.6	− .1362	1.3745	1.2383
−27	14.76	17.87	.05596	−61.8	530.7	592.5	543.7	481.9	− .1338	1.3697	1.2359
−26	15.18	17.40	.05747	−60.8	531.0	591.8	542.9	482.1	− .1314	1.3648	1.2334
−25	15.61	16.95	0.0590	−59.8	531.3	591.1	542.1	482.3	−0.1290	1.3599	1.2310
−24	16.05	16.51	.0606	−58.7	531.6	590.3	541.3	482.5	− .1266	1.3551	1.2286
−23	16.50	16.09	.0622	−57.7	531.9	589.6	540.5	482.8	− .1242	1.3503	1.2261
−22	16.96	15.68	.0638	−56.6	532.2	588.8	539.7	483.0	− .1218	1.3455	1.2237
−21	17.43	15.28	.0654	−55.6	532.5	588.1	538.9	483.2	− .1195	1.3408	1.2214
−20	17.91	14.89	0.0671	−54.6	532.8	587.4	538.0	483.4	−0.1171	1.3361	1.2190
−19	18.40	14.52	.0689	−53.5	533.1	586.6	537.2	483.6	− .1147	1.3314	1.2166
−18	18.90	14.16	.0706	−52.5	533.4	585.9	536.4	483.8	− .1124	1.3267	1.2143
−17	19.41	13.81	.0724	−51.4	533.7	585.1	535.6	484.0	− .1100	1.3220	1.2119
−16	19.93	13.48	.0742	−50.4	534.0	584.4	534.8	484.3	− .1077	1.3173	1.2096
−15	20.46	13.15	0.0760	−49.4	534.3	583.6	533.9	484.5	−0.1054	1.3127	1.2073
−14	21.00	12.83	.0779	−48.3	534.6	582.9	533.1	484.7	− .1031	1.3081	1.2050
−13	21.56	12.51	.0799	−47.3	534.8	582.1	532.3	484.9	− .1007	1.3034	1.2027
−12	22.13	12.21	.0819	−46.2	535.1	581.4	531.4	485.1	− .0984	1.2988	1.2004
−11	22.71	11.92	.0839	−45.2	535.4	580.6	530.6	485.3	− .0961	1.2942	1.1981
−10	23.30	11.63	0.0860	−44.2	535.7	579.9	529.8	485.5	−0.0938	1.2897	1.1959
− 9	23.90	11.35	.0881	−43.1	536.0	579.1	528.9	485.7	− .0915	1.2852	1.1936
− 8	24.52	11.08	.0903	−42.1	536.3	578.4	528.1	485.9	− .0893	1.2807	1.1914
− 7	25.15	10.82	.0924	−41.0	536.6	577.6	527.3	486.1	− .0870	1.2762	1.1892
− 6	25.80	10.57	.0946	−40.0	536.9	576.8	526.4	486.3	− .0847	1.2717	1.1870
− 5	26.46	10.32	0.0969	−38.9	537.1	576.1	525.6	486.6	−0.0824	1.2672	1.1848
− 4	27.13	10.08	.0992	−37.9	537.4	575.3	524.7	486.8	− .0801	1.2627	1.1826
− 3	27.82	9.85	.1015	−36.8	537.7	574.6	523.9	487.0	− .0778	1.2583	1.1805
− 2	28.52	9.62	.1039	−35.8	538.0	573.8	523.1	487.2	− .0755	1.2538	1.1783
− 1	29.23	9.40	.1064	−34.7	538.2	573.0	522.2	487.4	− .0732	1.2494	1.1762
0	29.95	9.19	0.1089	−33.7	538.5	572.2	521.4	487.6	−0.0709	1.2450	1.1741
1	30.69	8.98	.1114	−32.6	538.8	571.4	520.5	487.8	− .0686	1.2406	1.1720
2	31.44	8.78	.1139	−31.6	539.1	570.7	519.7	488.0	− .0663	1.2363	1.1700
3	32.21	8.58	.1165	−30.5	539.3	569.9	518.8	488.2	− .0640	1.2319	1.1679
4	32.99	8.39	.1192	−29.5	539.6	569.1	518.0	488.4	− .0618	1.2276	1.1658

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v″	1/v″	i′	i″	r	ρ″	u″	s′	r/T	s″
5	33.79	8.20	0.1219	−28.4	539.9	568.3	517.1	488.6	−0.0595	1.2232	1.1637
6	34.60	8.02	.1247	−27.4	540.1	567.5	516.3	488.7	− .0572	1.2189	1.1616
7	35.43	7.84	.1275	−26.3	540.4	566.7	515.4	488.9	− .0550	1.2146	1.1596
8	36.28	7.67	.1304	−25.3	540.7	565.9	514.6	489.1	− .0527	1.2103	1.1576
9	37.14	7.50	.1333	−24.2	540.9	565.2	513.7	489.3	− .0505	1.2060	1.1555
10	38.02	7.34	0.1363	−23.2	541.2	564.4	512.9	489.5	−0.0483	1.2018	1.1535
11	38.92	7.18	.1393	−22.1	541.4	563.6	512.0	489.7	− .0461	1.1976	1.1515
12	39.84	7.02	.1424	−21.1	541.7	562.8	511.2	489.9	− .0438	1.1933	1.1495
13	40.77	6.87	.1455	−20.0	542.0	562.0	510.3	490.1	− .0416	1.1891	1.1475
14	41.71	6.72	.1487	−19.0	542.2	561.2	509.4	490.3	− .0394	1.1849	1.1455
15	42.67	6.583	0.1519	−17.9	542.5	560.4	508.6	490.5	−0.0372	1.1807	1.1435
16	43.65	6.444	.1552	−16.8	542.7	559.6	507.7	490.6	− .0350	1.1766	1.1416
17	44.65	6.308	.1585	−15.8	543.0	558.8	506.8	490.8	− .0328	1.1724	1.1396
18	45.67	6.176	.1619	−14.7	543.2	558.0	506.0	491.0	− .0306	1.1683	1.1377
19	46.70	6.047	.1654	−13.6	543.5	557.1	505.1	491.2	− .0284	1.1641	1.1357
20	47.75	5.920	0.1689	−12.6	543.7	556.3	504.2	491.4	−0.0262	1.1600	1.1338
21	48.82	5.796	.1725	−11.5	544.0	555.5	503.3	491.6	− .0240	1.1559	1.1319
22	49.91	5.676	.1762	−10.4	544.2	554.7	502.4	491.8	− .0218	1.1517	1.1299
23	51.02	5.560	.1799	− 9.4	544.5	553.9	501.6	491.9	− .0196	1.1476	1.1280
24	52.15	5.447	.1836	− 8.3	544.7	553.1	500.7	492.1	− .0174	1.1436	1.1261
25	53.30	5.336	0.1874	− 7.3	545.0	552.2	499.8	492.3	−0.0153	1.1396	1.1243
26	54.47	5.228	.1913	− 6.2	545.2	551.4	498.9	492.5	− .0131	1.1355	1.1224
27	55.66	5.122	.1953	− 5.1	545.5	550.6	498.1	492.7	− .0109	1.1315	1.1206
28	56.87	5.019	.1993	− 4.1	545.7	549.8	497.2	492.9	− .0087	1.1275	1.1188
29	58.10	4.918	.2034	− 3.0	546.0	549.0	496.3	493.0	− .0066	1.1235	1.1169
30	59.35	4.820	0.2075	− 1.9	546.2	548.1	495.4	493.2	−0.0044	1.1195	1.1151
31	60.62	4.724	.2117	− 0.8	546.4	547.3	494.5	493.4	− .0022	1.1155	1.1133
32	61.91	4.631	.2159	+ 0.3	546.7	546.5	493.6	493.6	.0000	1.1115	1.1115
33	63.22	4.540	.2203	+ 1.3	546.9	545.6	492.8	493.8	+ .0021	1.1076	1.1098
34	64.55	4.451	.2247	+ 2.4	547.1	544.8	491.9	493.9	+ .0043	1.1037	1.1080
35	65.91	4.364	0.2292	3.5	547.4	543.9	491.0	494.1	0.0065	1.0997	1.1062
36	67.29	4.279	.2337	4.6	547.6	543.1	490.1	494.3	.0087	1.0958	1.1044
37	68.69	4.196	.2384	5.6	547.8	542.2	489.2	494.5	.0108	1.0919	1.1027
38	70.11	4.115	.2431	6.7	548.1	541.4	488.3	494.6	.0130	1.0880	1.1010
39	71.56	4.036	.2478	7.8	548.3	540.5	487.4	494.8	.0151	1.0841	1.0992
40	73.03	3.959	0.2526	8.9	548.5	539.7	486.5	495.0	0.0173	1.0802	1.0975
41	74.53	3.884	.2575	10.0	548.8	538.8	485.5	495.2	.0194	1.0764	1.0958
42	76.05	3.810	.2625	11.1	549.0	537.9	484.6	495.3	.0216	1.0725	1.0941
43	77.59	3.738	.2675	12.2	549.2	537.1	483.7	495.5	.0237	1.0687	1.0924
44	79.16	3.668	.2727	13.3	549.4	536.2	482.8	495.7	.0259	1.0648	1.0907
45	80.75	3.599	0.2779	14.3	549.7	535.3	481.9	495.9	0.0280	1.0610	1.0890
46	82.37	3.532	.2832	15.4	549.9	534.5	481.0	496.0	.0301	1.0572	1.0873
47	84.01	3.466	.2885	16.5	550.1	533.6	480.1	496.2	.0323	1.0534	1.0857
48	85.68	3.402	.2940	17.6	550.3	532.7	479.2	496.4	.0344	1.0496	1.0840
49	87.37	3.339	.2995	18.7	550.6	531.8	478.3	496.5	.0366	1.0458	1.0823
50	89.09	3.278	0.3051	19.8	550.8	531.0	477.3	496.7	0.0387	1.0420	1.0807
51	90.83	3.219	.3107	20.9	551.0	530.1	476.4	496.9	.0408	1.0383	1.0791
52	92.59	3.161	.3164	22.0	551.2	529.2	475.5	497.0	.0430	1.0345	1.0775
53	94.38	3.104	.3222	23.1	551.4	528.3	474.6	497.2	.0451	1.0307	1.0758
54	96.19	3.048	.3281	24.2	551.6	527.4	473.6	497.4	.0473	1.0269	1.0742
55	98.0	2.992	0.3342	25.3	551.9	526.5	472.7	497.5	0.0494	1.0232	1.0726
56	99.9	2.938	.3404	26.4	552.1	525.6	471.8	497.7	.0516	1.0195	1.0711
57	101.8	2.885	.3467	27.5	552.3	524.7	470.8	497.9	.0537	1.0158	1.0695
58	103.7	2.833	.3530	28.7	552.5	523.8	469.9	498.0	.0559	1.0121	1.0679
59	105.7	2.783	.3594	29.8	552.7	522.9	469.0	498.2	.0580	1.0084	1.0664

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v″	1/v″	i′	i″	r	ρ	u″	s′	r/T	s″
60	107.7	2.734	0.3658	30.9	552.9	522.0	468.0	498.4	0.0601	1.0047	1.0648
61	109.7	2.686	.3723	32.0	553.1	521.1	467.1	498.5	.0623	1.0010	1.0633
62	111.7	2.639	.3790	33.1	553.3	520.2	466.1	498.7	.0644	0.9974	1.0618
63	113.8	2.592	.3858	34.2	553.5	519.3	465.2	498.9	.0665	.9938	1.0603
64	115.9	2.547	.3927	35.3	553.7	518.4	464.2	499.0	.0687	.9901	1.0588
65	118.1	2.503	0.3996	36.5	554.0	517.5	463.3	499.2	0.0708	0.9864	1.0572
66	120.3	2.460	.4066	37.6	554.2	516.5	462.3	499.4	.0729	.9828	1.0557
67	122.5	2.418	.4136	38.7	554.4	515.6	461.4	499.5	.0750	.9792	1.0542
68	124.7	2.377	.4207	39.9	554.6	514.7	460.4	499.7	.0771	.9756	1.0527
69	126.9	2.336	.4280	41.0	554.8	513.7	459.5	499.9	.0792	.9720	1.0512
70	129.2	2.296	0.4354	42.1	555.0	512.8	458.5	500.0	0.0813	0.9684	1.0497
71	131.5	2.257	.4430	43.3	555.2	511.9	457.6	500.2	.0834	.9648	1.0482
72	133.9	2.219	.4506	44.4	555.4	511.0	456.6	500.4	.0855	.9613	1.0468
73	136.3	2.182	.4583	45.5	555.6	510.0	455.7	500.5	.0876	.9577	1.0453
74	138.7	2.145	.4662	46.7	555.8	509.1	454.7	500.7	.0898	.9541	1.0439
75	141.1	2.109	0.4742	47.8	556.0	508.1	453.7	500.9	0.0919	0.9505	1.0424
76	143.6	2.074	.4823	49.0	556.2	507.2	452.7	501.0	.0940	.9470	1.0410
77	146.1	2.039	.4905	50.1	556.4	506.2	451.7	501.2	.0961	.9435	1.0396
78	148.7	2.005	.4988	51.3	556.6	505.3	450.8	501.3	.0983	.9399	1.0382
79	151.3	1.972	.5071	52.4	556.8	504.3	449.8	501.5	.1004	.9364	1.0368
80	153.9	1.940	0.5155	53.6	557.0	503.4	448.8	501.7	0.1025	0.9329	1.0354
81	156.5	1.908	.5241	54.8	557.1	502.4	447.8	501.8	.1047	.9294	1.0340
82	159.2	1.877	.5328	55.9	557.3	501.4	446.9	502.0	.1068	.9259	1.0327
83	161.9	1.847	.5416	57.1	557.5	500.5	445.9	502.2	.1090	.9223	1.0313
84	164.6	1.817	.5504	58.3	557.7	499.5	444.9	502.3	.1111	.9188	1.0299
85	167.4	1.788	0.5594	59.4	557.9	498.5	443.9	502.5	0.1132	0.9154	1.0286
86	170.2	1.759	.5685	60.6	558.1	497.5	442.9	502.7	.1153	.9119	1.0272
87	173.0	1.731	.5777	61.8	558.3	496.5	441.9	502.8	.1175	.9084	1.0259
88	175.9	1.704	.5870	63.0	558.5	495.5	440.9	503.0	.1196	.9050	1.0246
89	178.8	1.677	.5964	64.2	558.7	494.5	439.9	503.1	.1217	.9015	1.0232
90	181.8	1.650	0.6060	65.3	558.9	493.5	438.9	503.3	0.1238	0.8981	1.0219
91	184.8	1.624	.6158	66.5	559.1	492.5	437.9	503.5	.1259	.8946	1.0206
92	187.8	1.598	.6258	67.7	559.2	491.5	436.9	503.6	.1281	.8911	1.0192
93	190.9	1.573	.6358	68.9	559.4	490.5	435.9	503.8	.1302	.8877	1.0179
94	194.1	1.548	.6460	70.1	559.6	489.5	434.9	504.0	.1323	.8843	1.0166
95	197.3	1.524	0.656	71.3	559.8	488.5	433.9	504.1	0.1344	0.8809	1.0153
96	200.5	1.500	.667	72.5	560.0	487.5	432.8	504.3	.1365	.8775	1.0140
97	203.8	1.477	.677	73.7	560.2	486.5	431.8	504.5	.1387	.8741	1.0128
98	207.1	1.454	.688	74.9	560.3	485.4	430.8	504.6	.1408	.8707	1.0115
99	210.4	1.431	.699	76.1	560.5	484.4	429.8	504.8	.1429	.8673	1.0102
100	213.8	1.408	0.710	77.3	560.7	483.4	428.7	504.9	0.1450	0.8639	1.0089
101	217.2	1.386	.721	78.5	560.9	482.3	427.7	505.1	.1471	.8605	1.0077
102	220.7	1.365	.732	79.7	561.1	481.3	426.7	505.2	.1493	.8571	1.0064
103	224.2	1.345	.743	80.9	561.2	480.3	425.6	505.4	.1514	.8538	1.0052
104	227.7	1.325	.755	82.2	561.4	479.2	424.6	505.6	.1535	.8504	1.0040
105	231.2	1.305	0.766	83.4	561.6	478.2	423.5	505.7	0.1557	0.8470	1.0027
106	234.8	1.285	.778	84.6	561.8	477.1	422.5	505.9	.1578	.8437	1.0015
107	238.4	1.266	.790	85.8	561.9	476.1	421.4	506.1	.1599	.8404	1.0003
108	242.1	1.247	.802	87.1	562.1	475.0	420.4	506.2	.1621	.8370	0.9991
109	245.8	1.228	.814	88.3	562.3	474.0	419.3	506.4	.1642	.8337	0.9979
110	249.6	1.210	0.826	89.6	562.5	472.9	418.3	506.6	0.1664	0.8303	0.9967
111	253.4	1.192	.839	90.8	562.6	471.8	417.2	506.7	.1686	.8269	.9955
112	257.3	1.174	.852	92.1	562.8	470.7	416.1	506.9	.1707	.8236	.9943
113	261.2	1.156	.865	93.3	563.0	469.6	415.1	507.1	.1729	.8203	.9931
114	265.2	1.139	.878	94.6	563.1	468.5	414.0	507.2	.1750	.8170	.9920

Temp., °F.	Pressure, lb. per sq. in.	Volume, cu. ft. per lb.	Weight, lb. per cu. ft.	Heat content in B.t.u.		Latent heat in B.t.u.		Energy of vapor B.t.u.	Entropy		
				of liquid	of vapor	of vaporization	Internal		of liquid	of vaporization	of vapor
t	p	v′	1/v′	i′	i″	r	ρ′	u″	s	r/T	s″
115	269.2	1.122	0.891	95.9	563.3	467.4	412.9	507.4	0.1772	0.8136	0.9908
116	273.3	1.105	.905	97.1	563.5	466.3	411.9	507.6	.1794	.8103	.9897
117	277.4	1.088	.919	98.4	563.7	465.2	410.8	507.7	.1816	.8069	.9885
118	281.5	1.072	.933	99.7	563.8	464.1	409.7	507.9	.1838	.8036	.9874
119	285.7	1.057	.946	101.0	564.0	463.0	408.6	508.1	.1859	.8003	.9862
120	289.9	1.042	0.960	102.2	564.2	461.9	407.5	508.2	0.1881	0.7970	0.9851
121	294.2	1.027	0.974	103.5	564.4	460.8	406.4	508.4	.1903	.7937	.9840
122	298.5	1.012	0.988	104.8	564.5	459.7	405.3	508.6	.1925	.7904	.9829
123	302.8	0.998	1.002	106.1	564.7	458.6	404.2	508.8	.1947	.7871	.9818
124	307.2	0.984	1.016	107.4	564.9	457.4	403.1	508.9	.1968	.7839	.9807
125	311.6	0.970	1.031	108.7	565.0	456.3	402.0	509.1	0.1990	0.7806	0.9796
126	316.1	.956	1.046	110.0	565.2	455.2	400.9	509.3	.2012	.7773	.9785
127	320.6	.942	1.061	111.3	565.4	454.0	399.8	509.4	.2034	.7740	.9774
128	325.2	.929	1.076	112.6	565.5	452.8	398.7	509.6	.2056	.7708	.9764
129	329.9	.916	1.092	114.0	565.7	451.7	397.6	509.8	.2078	.7675	.9753
130	334.6	0.903	1.108	115.3	565.9	450.6	396.4	510.0	0.2100	0.7642	0.9742
131	339.4	.890	1.124	116.6	566.0	449.4	395.3	510.2	.2122	.7610	.9732
132	344.2	.877	1.140	118.0	566.2	448.2	394.2	510.3	.2145	.7577	.9721
133	349.0	.865	1.156	119.3	566.4	447.0	393.0	510.5	.2167	.7544	.9711
134	353.9	.853	1.172	120.7	566.5	445.8	391.9	510.7	.2189	.7512	.9701
135	358.8	0.841	1.189	122.0	566.7	444.7	390.7	510.8	0.2211	0.7479	0.9690
136	363.8	.829	1.206	123.4	566.8	443.5	389.6	511.0	.2234	.7446	.9680
137	368.9	.817	1.224	124.7	567.0	442.3	388.4	511.2	.2256	.7414	.9670
138	374.0	.806	1.241	126.1	567.2	441.1	387.3	511.3	.2278	.7381	.9659
139	379.2	.795	1.258	127.4	567.3	439.9	386.1	511.5	.2301	.7348	.9649
140	384.4	0.784	1.275	128.8	567.5	438.6	384.9	511.7	0.2323	0.7316	0.9639
141	389.7	.773	1.293	130.2	567.6	437.4	383.8	511.8	.2346	.7283	.9629
142	395.0	.762	1.312	131.6	567.8	436.2	382.6	512.0	.2368	.7251	.9619
143	400.4	.751	1.331	133.0	567.9	435.0	381.4	512.2	.2391	.7218	.9609
144	405.8	.741	1.349	134.4	568.1	433.7	380.2	512.4	.2413	.7186	.9599
145	411.3	0.731	1.368	135.8	568.3	432.5	379.0	512.6	0.2436	0.7154	0.9589
146	416.8	.721	1.387	137.2	568.4	431.2	377.8	512.7	.2459	.7121	.9579
147	422.4	.711	1.406	138.6	568.6	430.0	376.6	512.9	.2481	.7089	.9570
148	428.0	.701	1.425	140.0	568.7	428.7	375.4	513.1	.2504	.7056	.9560
149	433.7	.692	1.445	141.5	568.9	427.4	374.2	513.3	.2527	.7024	.9551
150	439.5	0.683	1.465	142.9	569.0	426.2	373.0	513.4	0.2550	0.6991	0.9541
155	469.1	.638	1.567	150.1	569.8	419.7	366.9	514.4	.2666	.6829	.9495
160	500.1	.597	1.676	157.5	570.5	413.0	360.6	515.3	.2784	.6666	.9450
165	532.6	.558	1.792	165.1	571.3	406.2	354.2	516.2	.2903	.6503	.9406
170	566.6	.522	1.915	172.9	572.0	399.1	347.6	517.2	.3023	.6340	.9363
175	602.2	0.489	2.045	180.9	572.7	391.8	340.8	518.2	0.3146	0.6175	0.9321
180	639.5	.458	2.183	189.1	573.4	384.3	333.9	519.2	.3271	.6010	.9281
185	678.4	.429	2.330	197.5	574.0	376.6	326.8	520.2	.3399	.5843	.9242
190	719.0	.402	2.488	206.2	574.7	368.5	319.4	521.2	.3530	.5674	.9204
195	761.4	.376	2.660	215.2	575.4	360.2	311.8	522.3	.3664	.5503	.9167

Pressure	15 [−26.4]			16 [−24.1]			17 [−21.9]			18 [−19.8]		
Temp °F	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	17.6	1.234	530.9	16.6	1.229	531.6	15.6	1.224	532.2	14.8	1.219	532.8
−20	17.9	1.243	534.4	16.8	1.234	533.8	15.7	1.226	533.3	....	.....	.....
−10	18.4	1.255	539.9	17.3	1.246	539.3	16.2	1.238	538.9	15.3	1.231	538.4
0	18.9	1.267	545.2	17.7	1.258	544.7	16.6	1.250	544.3	15.7	1.243	543.9
10	19.3	1.278	550.5	18.1	1.270	550.1	17.0	1.262	549.7	16.1	1.255	549.3
20	19.8	1.289	555.7	18.6	1.281	555.4	17.4	1.273	555.0	16.4	1.266	554.7
30	20.2	1.300	560.9	19.0	1.292	560.6	17.8	1.284	560.3	16.8	1.277	560.0
40	20.7	1.310	566.0	19.4	1.302	565.8	18.2	1.295	565.5	17.2	1.288	565.2
50	21.1	1.320	571.1	19.8	1.312	570.9	18.6	1.305	570.6	17.6	1.298	570.3
60	21.5	1.330	576.2	20.2	1.322	576.0	19.0	1.315	575.7	18.0	1.308	575.5
70	22.0	1.340	581.3	20.6	1.332	581.0	19.4	1.325	580.8	18.3	1.318	580.6
80	22.4	1.349	586.3	21.0	1.341	586.0	19.8	1.334	585.8	18.7	1.327	585.7
90	22.9	1.358	591.4	21.5	1.350	591.1	20.2	1.343	591.0	19.1	1.336	590.8
100	23.3	1.367	596.4	21.9	1.359	596.1	20.6	1.352	596.0	19.4	1.345	595.8
110	23.7	1.376	601.4	22.3	1.368	601.1	21.0	1.361	601.0	19.8	1.354	600.8
120	24.2	1.385	606.4	22.7	1.377	606.2	21.4	1.370	606.0	20.1	1.363	605.9
130	24.6	1.394	611.4	23.1	1.386	611.2	21.7	1.379	611.0	20.5	1.372	610.9
140	25.1	1.402	616.4	23.5	1.394	616.2	22.1	1.387	616.1	20.9	1.380	616.0
150	25.5	1.410	621.4	23.9	1.403	621.2	22.5	1.395	621.1	21.2	1.388	621.0
160	25.9	1.418	626.4	24.3	1.411	626.2	22.9	1.404	626.1	21.6	1.397	626.0
170	26.3	1.426	631.4	24.7	1.419	631.2	23.3	1.412	631.1	22.0	1.405	631.0
180	26.8	1.434	636.4	25.1	1.427	636.3	23.7	1.420	636.2	22.4	1.413	636.1
200	27.7	1.449	646.5	26.0	1.442	646.4	24.5	1.435	646.3	23.2	1.428	646.2
220	28.5	1.464	656.7	26.8	1.457	656.6	25.3	1.450	656.5	23.9	1.443	656.4
240	29.3	1.479	666.9	27.6	1.472	666.8	26.1	1.465	666.7	24.7	1.458	666.6

	19 [−17.8]			20 [−15.9]			21 [−14.0]			22 [−12.2]		
Sat.	14.1	1.214	533.4	13.4	1.209	534.0	12.8	1.205	534.6	12.3	1.201	535.1
−10	14.4	1.224	537.9	13.7	1.217	537.4	13.0	1.210	536.9	12.4	1.204	536.4
0	14.8	1.236	543.4	14.0	1.229	542.9	13.3	1.222	542.5	12.7	1.216	542.1
10	15.2	1.248	548.8	14.4	1.241	548.4	13.7	1.234	548.1	13.1	1.228	547.7
20	15.5	1.259	554.2	14.7	1.252	553.9	14.0	1.246	553.6	13.4	1.240	553.2
30	15.9	1.270	559.6	15.1	1.263	559.2	14.4	1.257	558.9	13.7	1.251	558.6
40	16.3	1.281	564.9	15.5	1.274	564.5	14.7	1.268	564.2	14.0	1.262	564.0
50	16.7	1.291	570.1	15.8	1.284	569.8	15.0	1.278	569.5	14.3	1.272	569.3
60	17.0	1.301	575.3	16.2	1.294	575.0	15.4	1.288	574.7	14.7	1.282	574.5
70	17.3	1.311	580.4	16.5	1.304	580.2	15.7	1.298	579.9	15.0	1.292	579.7
80	17.7	1.320	585.5	16.8	1.314	585.3	16.0	1.308	585.1	15.3	1.302	584.9
90	18.0	1.329	590.6	17.1	1.323	590.4	16.3	1.317	590.2	15.6	1.312	590.0
100	18.4	1.339	595.7	17.5	1.332	595.5	16.6	1.326	595.3	15.9	1.321	595.1
110	18.7	1.348	600.7	17.8	1.341	600.5	16.9	1.335	600.4	16.2	1.330	600.2
120	19.0	1.357	605.8	18.1	1.350	605.6	17.2	1.344	605.4	16.5	1.339	605.3
130	19.4	1.365	610.8	18.4	1.359	610.7	17.5	1.353	610.5	16.8	1.347	610.4
140	19.8	1.374	615.8	18.8	1.368	615.7	17.8	1.362	615.5	17.1	1.356	615.4
150	20.1	1.382	620.9	19.1	1.376	620.8	18.1	1.370	620.6	17.3	1.364	620.5
160	20.4	1.390	625.9	19.4	1.384	625.8	18.4	1.378	625.7	17.6	1.372	625.6
170	20.8	1.398	630.9	19.7	1.392	630.8	18.7	1.386	630.7	17.9	1.381	630.6
180	21.2	1.406	636.0	20.1	1.400	635.9	19.1	1.394	635.8	18.2	1.389	635.7
200	21.9	1.421	646.1	20.8	1.415	646.0	19.7	1.410	645.9	18.8	1.404	645.8
220	22.6	1.437	656.3	21.4	1.431	656.2	20.3	1.425	656.1	19.4	1.419	656.0
240	23.2	1.452	666.5	22.0	1.446	666.4	20.9	1.440	666.3	20.0	1.434	666.2
260	23.8	1.467	676.7	22.6	1.461	676.6	21.5	1.455	676.5	20.6	1.449	676.5

v = volume, cu. ft. per lb. s = entropy i = heat content, B.t.u.

Pressure	23 [−10.5]			24 [−8.8]			25 [−7.2]			26 [−5.7]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	11.8	1.197	535.6	11.3	1.193	536.1	10.9	1.190	536.5	10.5	1.186	536.9
0	12.1	1.210	541.7	11.6	1.204	541.2	11.1	1.199	540.8	10.7	1.193	540.3
10	12.5	1.222	547.3	11.9	1.217	546.9	11.4	1.211	546.5	11.0	1.206	546.1
20	12.8	1.234	552.8	12.2	1.229	552.4	11.7	1.223	552.1	11.3	1.218	551.7
30	13.1	1.245	558.3	12.5	1.240	557.9	12.0	1.235	557.6	11.5	1.230	557.2
40	13.4	1.256	563.7	12.8	1.251	563.3	12.3	1.246	563.0	11.8	1.241	562.7
50	13.7	1.267	569.0	13.1	1.262	568.7	12.6	1.256	568.4	12.1	1.251	568.1
60	14.0	1.277	574.3	13.4	1.272	574.0	12.8	1.266	573.7	12.3	1.261	573.4
70	14.3	1.287	579.5	13.7	1.282	579.2	13.1	1.276	578.9	12.6	1.271	578.7
80	14.6	1.297	584.7	14.0	1.291	584.4	13.4	1.286	584.1	12.9	1.281	583.9
90	14.9	1.306	589.8	14.3	1.301	589.5	13.7	1.296	589.3	13.2	1.291	589.2
100	15.2	1.315	595.0	14.5	1.310	594.7	13.9	1.305	594.5	13.4	1.300	594.4
110	15.5	1.324	600.1	14.8	1.319	599.9	14.2	1.314	599.7	13.6	1.309	599.6
120	15.8	1.333	605.2	15.1	1.328	605.0	14.5	1.323	604.8	13.9	1.318	604.7
130	16.0	1.342	610.3	15.3	1.337	610.1	14.7	1.332	609.9	14.1	1.327	609.8
140	16.3	1.351	615.3	15.6	1.346	615.1	15.0	1.341	615.0	14.4	1.336	614.9
150	16.5	1.359	620.4	15.8	1.354	620.2	15.2	1.349	620.1	14.6	1.344	620.0
160	16.8	1.367	625.4	16.1	1.362	625.3	15.4	1.357	625.2	14.8	1.352	625.1
170	17.1	1.375	630.5	16.4	1.370	630.4	15.7	1.365	630.3	15.1	1.360	630.2
180	17.4	1.383	635.6	16.7	1.378	635.5	16.0	1.373	635.4	15.4	1.368	635.3
190	17.7	1.391	640.7	16.9	1.386	640.6	16.2	1.381	640.5	15.6	1.376	640.4
200	18.0	1.399	645.8	17.2	1.394	645.7	16.5	1.389	645.6	15.9	1.384	645.5
220	18.5	1.414	656.0	17.7	1.409	655.9	17.0	1.404	655.8	16.4	1.399	655.8
240	19.1	1.429	666.2	18.3	1.424	666.1	17.6	1.419	666.0	16.9	1.414	666.0
260	19.7	1.444	676.4	18.9	1.438	676.3	18.1	1.433	676.2	17.4	1.429	676.2

	27 [−4.2]			28 [−2.7]			30 [+0.1]			32 [2.7]		
Sat.	10.1	1.183	537.4	9.8	1.180	537.8	9.17	1.174	538.5	8.64	1.168	539.3
0	10.2	1.188	539.8	9.9	1.183	539.4	....	.....	.....	....	.....	.....
10	10.5	1.201	545.7	10.2	1.196	545.3	9.45	1.187	544.5	8.83	1.178	543.7
20	10.8	1.213	551.4	10.4	1.208	551.0	9.70	1.199	550.3	9.06	1.190	549.5
30	11.1	1.225	556.9	10.7	1.220	556.6	9.94	1.211	556.0	9.29	1.202	555.3
40	11.3	1.236	562.4	10.9	1.231	562.1	10.18	1.222	561.6	9.52	1.213	561.0
50	11.6	1.246	567.9	11.2	1.242	567.6	10.41	1.233	567.1	9.74	1.224	566.5
60	11.8	1.257	573.2	11.4	1.252	572.9	10.64	1.243	572.5	9.95	1.235	572.0
70	12.1	1.267	578.5	11.7	1.262	578.2	10.87	1.253	577.9	10.17	1.245	577.5
80	12.4	1.277	583.7	11.9	1.272	583.5	11.10	1.263	583.2	10.38	1.255	582.8
90	12.6	1.286	589.0	12.2	1.282	588.8	11.32	1.273	588.5	10.60	1.265	588.1
100	12.9	1.296	594.2	12.4	1.291	594.0	11.55	1.283	593.7	10.81	1.275	593.3
110	13.1	1.305	599.4	12.6	1.300	599.2	11.77	1.292	598.9	11.02	1.284	598.6
120	13.4	1.314	604.6	12.9	1.309	604.4	11.99	1.301	604.1	11.23	1.293	603.8
130	13.6	1.323	609.7	13.1	1.318	609.5	12.21	1.310	609.3	11.44	1.302	609.0
140	13.8	1.331	614.8	13.2	1.326	614.6	12.43	1.318	614.4	11.64	1.310	614.1
150	14.1	1.340	619.9	13.6	1.335	619.7	12.65	1.327	619.5	11.85	1.319	619.3
160	14.3	1.348	625.0	13.8	1.344	624.9	12.87	1.335	624.7	12.05	1.327	624.5
170	14.5	1.356	630.1	14.0	1.352	630.0	13.08	1.344	629.8	12.25	1.336	629.6
180	14.8	1.364	635.2	14.3	1.360	635.1	13.30	1.352	634.9	12.46	1.344	634.7
190	15.0	1.372	640.3	14.5	1.368	640.2	13.52	1.360	640.0	12.67	1.352	639.8
200	15.3	1.380	645.4	14.7	1.376	645.3	13.74	1.367	645.2	12.87	1.359	645.0
220	15.8	1.395	655.7	15.2	1.391	655.6	14.17	1.383	655.4	13.27	1.375	655.3
240	16.2	1.410	665.9	15.6	1.406	665.8	14.59	1.398	665.7	13.67	1.390	665.6
260	16.7	1.425	676.1	16.1	1.420	676.1	15.02	1.412	676.0	14.08	1.404	675.8

v = volume, cu. ft. per lb. s = entropy i = heat content, B.t.u.

Pressure	34 [5.3]			36 [7.7]			38 [10.0]			40 [12.2]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	8.15	1.163	540.0	7.73	1.158	540.6	7.34	1.153	541.2	6.99	1.149	541.8
10	8.26	1.169	542.9	7.78	1.161	542.0	7.34	1.153	541.2	....	.....	.....
20	8.50	1.182	548.8	8.01	1.174	548.0	7.56	1.166	547.3	7.17	1.159	546.6
30	8.72	1.194	554.6	8.22	1.186	553.9	7.76	1.179	553.3	7.36	1.172	552.6
40	8.93	1.205	560.4	8.42	1.198	559.7	7.96	1.191	559.1	7.54	1.184	558.5
50	9.14	1.216	566.0	8.62	1.209	565.4	8.15	1.202	564.8	7.72	1.195	564.3
60	9.35	1.227	571.5	8.81	1.220	571.0	8.33	1.213	570.5	7.90	1.206	570.0
70	9.56	1.237	577.0	9.01	1.230	576.5	8.52	1.223	576.0	8.08	1.217	575.5
80	9.76	1.247	582.4	9.20	1.240	581.9	8.70	1.233	581.4	8.25	1.227	581.0
90	9.96	1.257	587.7	9.39	1.250	587.3	8.88	1.243	586.8	8.42	1.237	586.4
100	10.16	1.267	593.0	9.58	1.260	592.6	9.06	1.253	592.2	8.59	1.247	591.8
110	10.36	1.276	598.2	9.77	1.269	597.8	9.24	1.262	597.5	8.76	1.256	597.2
120	10.56	1.285	603.4	9.96	1.278	603.1	9.42	1.272	602.8	8.93	1.265	602.5
130	10.76	1.294	608.7	10.15	1.287	608.4	9.60	1.281	608.1	9.10	1.274	607.8
140	10.95	1.303	613.9	10.33	1.296	613.6	9.77	1.289	613.3	9.27	1.283	613.0
150	11.14	1.312	619.1	10.51	1.305	618.8	9.95	1.298	618.5	9.44	1.292	618.2
160	11.33	1.320	624.2	10.69	1.313	624.0	10.12	1.307	623.7	9.61	1.300	623.4
170	11.52	1.328	629.3	10.87	1.321	629.1	10.29	1.315	628.9	9.77	1.309	628.6
180	11.72	1.336	634.5	11.06	1.329	634.3	10.47	1.323	634.1	9.93	1.317	633.9
190	11.91	1.344	639.7	11.24	1.337	639.5	10.64	1.331	639.3	10.10	1.325	639.1
200	12.10	1.352	644.9	11.42	1.346	644.7	10.81	1.339	644.5	10.26	1.333	644.3
220	12.48	1.368	655.1	11.78	1.361	655.0	11.15	1.354	654.8	10.58	1.348	654.6
240	12.86	1.383	665.4	12.13	1.376	665.3	11.49	1.369	665.2	10.90	1.363	665.0
260	13.24	1.397	675.7	12.48	1.391	675.6	11.83	1.384	675.5	11.23	1.378	675.4
280	13.62	1.412	686.0	12.84	1.405	685.9	12.17	1.398	685.8	11.55	1.392	685.7

	42 [14.4]			44 [16.4]			46 [18.4]			48 [20.3]		
Sat.	6.67	1.145	542.3	6.38	1.141	542.8	6.12	1.137	543.3	5.88	1.133	543.8
20	6.81	1.152	545.8	6.47	1.145	545.1	6.15	1.139	544.3	....	.....	.....
30	7.00	1.165	551.9	6.65	1.158	551.3	6.33	1.152	550.6	6.06	1.146	550.0
40	7.17	1.177	557.9	6.82	1.170	557.3	6.51	1.164	556.7	6.22	1.158	556.1
50	7.34	1.188	563.7	6.99	1.182	563.2	6.68	1.176	562.6	6.38	1.170	562.0
60	7.51	1.199	569.5	7.16	1.193	569.0	6.84	1.187	568.4	6.54	1.182	567.9
70	7.68	1.210	575.1	7.32	1.204	574.6	6.99	1.198	574.1	6.69	1.193	573.6
80	7.85	1.220	580.6	7.48	1.214	580.2	7.14	1.209	579.7	6.84	1.203	579.3
90	8.02	1.230	586.0	7.64	1.224	585.7	7.29	1.219	585.3	6.98	1.213	584.9
100	8.18	1.240	591.5	7.80	1.234	591.1	7.44	1.229	590.8	7.13	1.223	590.4
110	8.34	1.250	596.9	7.95	1.244	596.5	7.59	1.238	596.2	7.27	1.233	595.9
120	8.50	1.259	602.2	8.10	1.253	601.9	7.74	1.248	601.6	7.42	1.242	601.3
130	8.66	1.268	607.5	8.26	1.262	607.2	7.89	1.257	606.9	7.56	1.251	606.6
140	8.82	1.277	612.7	8.41	1.271	612.5	8.04	1.266	612.2	7.70	1.260	611.9
150	8.98	1.286	618.0	8.56	1.280	617.7	8.18	1.275	617.5	7.84	1.269	617.2
160	9.14	1.294	623.2	8.71	1.289	623.0	8.32	1.283	622.8	7.98	1.278	622.5
170	9.30	1.303	628.4	8.86	1.297	628.2	8.47	1.292	628.0	8.12	1.286	627.8
180	9.45	1.311	633.7	9.01	1.305	633.5	8.61	1.300	633.3	8.25	1.295	633.1
190	9.61	1.319	638.9	9.16	1.313	638.7	8.76	1.308	638.5	8.39	1.303	638.3
200	9.76	1.327	644.1	9.31	1.321	643.9	8.90	1.316	643.7	8.53	1.311	643.5
210	9.92	1.335	649.3	9.46	1.329	649.1	9.04	1.324	648.9	8.67	1.319	648.8
220	10.08	1.342	654.5	9.61	1.337	654.3	9.18	1.331	654.1	8.80	1.326	654.0
240	10.38	1.357	664.9	9.90	1.352	664.7	9.46	1.346	664.6	9.06	1.341	664.5
260	10.69	1.372	675.3	10.19	1.366	675.1	9.74	1.361	675.0	9.33	1.356	674.9
280	10.99	1.386	685.7	10.48	1.381	685.6	10.02	1.375	685.5	9.60	1.370	685.4

Pressure	50 [22.1]			55 [26.4]			60 [30.5]			65 [34.3]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	5.67	1.130	544.3	5.18	1.122	545.3	4.77	1.114	546.3	4.42	1.107	547.2
30	5.80	1.140	549.4	5.23	1.126	547.6	....	.....	.....	....	.....	.....
40	5.96	1.153	555.5	5.38	1.139	554.0	4.90	1.127	552.5	4.50	1.115	551.0
50	6.11	1.165	561.5	5.52	1.151	560.1	5.03	1.139	558.8	4.62	1.128	557.4
60	6.26	1.176	567.4	5.66	1.163	566.1	5.16	1.151	564.9	4.74	1.140	563.6
70	6.41	1.187	573.2	5.80	1.174	572.0	5.29	1.162	570.9	4.86	1.151	569.7
80	6.55	1.198	578.9	5.93	1.185	577.8	5.41	1.173	576.8	4.97	1.162	575.7
90	6.69	1.208	584.5	6.06	1.196	583.5	5.53	1.184	582.6	5.08	1.173	581.6
100	6.83	1.218	590.0	6.19	1.206	589.1	5.65	1.194	588.2	5.19	1.184	587.3
110	6.97	1.228	595.5	6.32	1.216	594.7	5.77	1.204	593.8	5.30	1.194	593.0
120	7.11	1.237	601.0	6.45	1.225	600.2	5.88	1.214	599.4	5.41	1.204	598.7
130	7.24	1.246	606.4	6.57	1.234	605.6	6.00	1.223	604.9	5.52	1.213	604.2
140	7.38	1.255	611.7	6.69	1.244	611.0	6.11	1.233	610.4	5.63	1.222	609.7
150	7.51	1.264	617.0	6.81	1.253	616.4	6.22	1.242	615.8	5.73	1.231	615.2
160	7.65	1.273	622.3	6.94	1.261	621.7	6.34	1.250	621.1	5.84	1.240	620.6
170	7.78	1.281	627.6	7.06	1.270	627.0	6.46	1.259	626.5	5.95	1.249	626.0
180	7.91	1.290	632.9	7.18	1.278	632.3	6.57	1.267	631.8	6.05	1.257	631.3
190	8.04	1.298	638.1	7.30	1.286	637.6	6.68	1.275	637.1	6.15	1.265	636.6
200	8.17	1.306	643.3	7.42	1.294	642.9	6.79	1.283	642.4	6.26	1.274	641.9
210	8.30	1.314	648.6	7.54	1.302	648.2	6.90	1.291	647.7	6.36	1.282	647.3
220	8.43	1.321	653.9	7.66	1.310	653.5	7.01	1.299	653.0	6.46	1.289	652.6
240	8.69	1.336	664.4	7.89	1.325	664.0	7.22	1.315	663.6	6.66	1.305	663.2
260	8.95	1.351	674.8	8.13	1.340	674.4	7.44	1.329	674.1	6.86	1.320	673.7
280	9.21	1.365	685.2	8.37	1.354	684.9	7.66	1.344	684.6	7.06	1.334	684.3
300	9.47	1.380	695.7	8.60	1.368	695.4	7.87	1.358	695.1	7.26	1.348	694.9

	70 [37.9]			75 [41.3]			80 [44.5]			85 [47.6]		
Sat.	4.12	1.101	548.1	3.86	1.095	548.8	3.63	1.090	549.5	3.43	1.085	550.2
50	4.27	1.117	556.0	3.96	1.107	554.7	3.69	1.097	553.3	3.45	1.088	551.9
60	4.38	1.129	562.4	4.07	1.119	561.1	3.80	1.110	559.9	3.55	1.101	558.6
70	4.49	1.141	568.6	4.18	1.131	567.4	3.90	1.122	566.3	3.65	1.113	565.1
80	4.60	1.152	574.7	4.28	1.143	573.6	4.00	1.134	572.6	3.74	1.125	571.5
90	4.70	1.163	580.7	4.38	1.154	579.7	4.09	1.145	578.7	3.83	1.137	577.7
100	4.81	1.174	586.5	4.48	1.165	585.6	4.18	1.156	584.7	3.92	1.148	583.8
110	4.91	1.184	592.2	4.57	1.175	591.4	4.27	1.166	590.5	4.00	1.158	589.7
120	5.01	1.194	597.9	4.67	1.185	597.1	4.36	1.176	596.3	4.09	1.168	595.6
130	5.11	1.204	603.5	4.76	1.195	602.8	4.45	1.186	602.1	4.17	1.178	601.4
140	5.21	1.213	609.1	4.85	1.204	608.4	4.53	1.196	607.8	4.25	1.188	607.1
150	5.31	1.222	614.6	4.94	1.213	614.0	4.62	1.205	613.4	4.34	1.197	612.7
160	5.41	1.231	620.0	5.04	1.222	619.4	4.71	1.214	618.9	4.42	1.206	618.3
170	5.51	1.240	625.4	5.13	1.231	624.8	4.79	1.223	624.3	4.50	1.215	623.8
180	5.60	1.248	630.8	5.22	1.240	630.3	4.88	1.231	629.8	4.58	1.224	629.3
190	5.70	1.256	636.2	5.31	1.248	635.7	4.96	1.240	635.3	4.66	1.232	634.8
200	5.80	1.265	641.5	5.40	1.256	641.0	5.04	1.248	640.6	4.74	1.240	640.2
210	5.89	1.273	646.9	5.49	1.264	646.4	5.13	1.256	646.0	4.82	1.248	645.6
220	5.98	1.280	652.2	5.58	1.272	651.7	5.22	1.264	651.3	4.90	1.256	650.9
230	6.08	1.288	657.5	5.66	1.280	657.1	5.30	1.272	656.7	4.98	1.264	656.3
240	6.17	1.296	662.8	5.75	1.288	662.4	5.38	1.280	662.0	5.06	1.272	661.6
260	6.36	1.311	673.4	5.93	1.303	673.0	5.55	1.295	672.7	5.22	1.287	672.4
280	6.55	1.325	684.0	6.10	1.317	683.7	5.71	1.309	683.4	5.37	1.302	683.1
300	6.73	1.339	694.6	6.27	1.331	694.4	5.87	1.323	694.1	5.52	1.316	693.8
320	6.91	1.353	705.3	6.44	1.345	705.1	6.04	1.337	704.8	5.68	1.330	704.5

Pressure	90 [50.5]			95 [53.3]			100 [56.0]			105 [58.6]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	3.25	1.080	550.9	3.08	1.075	551.5	2.94	1.071	552.1	2.80	1.067	552.6
60	3.33	1.092	557.4	3.14	1.084	556.1	2.97	1.076	554.9	2.81	1.069	553.6
70	3.42	1.105	564.0	3.23	1.097	562.8	3.05	1.089	561.7	2.89	1.082	560.6
80	3.51	1.117	570.5	3.31	1.109	569.4	3.13	1.102	568.4	2.97	1.095	567.3
90	3.60	1.129	576.8	3.40	1.121	575.8	3.21	1.114	574.8	3.05	1.107	573.8
100	3.69	1.140	582.9	3.48	1.132	582.0	3.29	1.125	581.1	3.13	1.118	580.2
110	3.77	1.150	588.9	3.56	1.143	588.1	3.37	1.136	587.2	3.20	1.129	586.4
120	3.85	1.161	594.9	3.63	1.153	594.1	3.44	1.146	593.3	3.27	1.140	592.5
130	3.93	1.171	600.7	3.71	1.163	600.0	3.52	1.156	599.3	3.34	1.150	598.5
140	4.01	1.180	606.4	3.79	1.173	605.8	3.59	1.166	605.1	3.41	1.160	604.4
150	4.09	1.190	612.1	3.86	1.183	611.5	3.66	1.176	610.8	3.48	1.170	610.2
160	4.17	1.199	617.7	3.94	1.192	617.1	3.73	1.185	616.5	3.54	1.179	616.0
170	4.24	1.208	623.3	4.01	1.201	622.7	3.80	1.194	622.2	3.61	1.188	621.7
180	4.32	1.217	628.8	4.08	1.210	628.3	3.87	1.203	627.8	3.68	1.197	627.3
190	4.40	1.225	634.3	4.16	1.218	633.8	3.94	1.212	633.4	3.74	1.206	632.9
200	4.47	1.233	639.8	4.23	1.226	639.3	4.01	1.220	638.9	3.81	1.214	638.5
210	4.55	1.241	645.2	4.30	1.235	644.8	4.08	1.228	644.4	3.87	1.222	644.0
220	4.62	1.249	650.6	4.37	1.243	650.2	4.15	1.236	649.8	3.94	1.230	649.4
230	4.70	1.257	656.0	4.44	1.251	655.6	4.21	1.244	655.3	4.00	1.238	654.9
240	4.77	1.265	661.3	4.51	1.259	661.0	4.28	1.252	660.7	4.07	1.246	660.4
260	4.92	1.280	672.1	4.65	1.274	671.8	4.41	1.268	671.5	4.19	1.261	671.2
280	5.06	1.295	682.8	4.79	1.288	682.5	4.54	1.282	682.2	4.31	1.276	682.0
300	5.21	1.309	693.5	4.93	1.303	693.2	4.67	1.297	693.0	4.44	1.291	692.8
320	5.36	1.323	704.2	5.07	1.317	704.0	4.80	1.311	703.8	4.56	1.305	703.6
340	5.50	1.337	714.9	5.20	1.330	714.8	4.93	1.324	714.6	4.68	1.318	714.5

	110 [61.1]			115 [63.6]			120 [65.8]			125 [68.1]		
Sat.	2.68	1.063	553.1	2.57	1.059	553.6	2.47	1.056	554.1	2.37	1.052	554.6
70	2.75	1.075	559.4	2.63	1.068	558.3	2.50	1.061	557.1	2.38	1.055	555.9
80	2.83	1.088	566.2	2.70	1.081	565.2	2.57	1.074	564.1	2.45	1.068	563.0
90	2.90	1.100	572.9	2.77	1.093	571.9	2.64	1.087	570.9	2.52	1.081	569.9
100	2.97	1.111	579.3	2.84	1.105	578.4	2.71	1.099	577.5	2.59	1.093	576.6
110	3.04	1.122	585.5	2.90	1.116	584.7	2.77	1.110	583.9	2.65	1.104	583.1
120	3.11	1.133	591.7	2.97	1.127	590.9	2.83	1.121	590.2	2.71	1.115	589.4
130	3.17	1.144	597.8	3.03	1.138	597.0	2.90	1.132	596.3	2.77	1.126	595.6
140	3.24	1.154	603.7	3.10	1.148	603.0	2.96	1.142	602.4	2.83	1.136	601.7
150	3.31	1.164	609.6	3.16	1.158	609.0	3.02	1.152	608.4	2.89	1.146	607.8
160	3.37	1.173	615.4	3.22	1.167	614.8	3.08	1.161	614.3	2.95	1.156	613.7
170	3.43	1.182	621.1	3.28	1.176	620.6	3.14	1.171	620.1	3.01	1.165	619.6
180	3.50	1.191	626.8	3.34	1.185	626.3	3.19	1.180	625.8	3.06	1.174	625.4
190	3.56	1.200	632.4	3.40	1.194	632.0	3.25	1.188	631.5	3.11	1.183	631.1
200	3.62	1.208	638.0	3.46	1.203	637.6	3.31	1.197	637.1	3.17	1.192	636.7
210	3.69	1.216	643.5	3.52	1.211	643.1	3.36	1.205	642.7	3.22	1.200	642.3
220	3.75	1.225	649.0	3.58	1.219	648.6	3.42	1.214	648.2	3.28	1.209	647.9
230	3.81	1.233	654.5	3.64	1.227	654.2	3.48	1.222	653.8	3.34	1.217	653.6
240	3.87	1.241	660.0	3.70	1.235	659.7	3.54	1.230	659.4	3.39	1.225	659.1
260	3.99	1.256	671.0	3.82	1.250	670.7	3.65	1.245	670.4	3.50	1.240	670.2
280	4.11	1.271	681.8	3.93	1.265	681.5	3.76	1.260	681.3	3.60	1.255	681.1
300	4.23	1.285	692.6	4.04	1.280	692.3	3.87	1.275	692.1	3.71	1.270	691.9
320	4.35	1.299	703.4	4.16	1.294	703.2	3.98	1.289	703.0	3.82	1.284	702.8
340	4.47	1.313	714.3	4.27	1.307	714.1	4.09	1.302	713.9	3.92	1.297	713.7
360	4.59	1.326	725.1	4.38	1.321	724.9	4.20	1.316	724.7	4.03	1.311	724.5

Pressure	130 [70.4]			135 [72.5]			140 [74.5]			145 [76.5]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	2.28	1.049	555.0	2.20	1.046	555.5	2.12	1.043	555.9	2.06	1.040	556.3
80	2.35	1.062	562.0	2.25	1.056	560.9	2.16	1.050	559.9	2.08	1.045	558.9
90	2.42	1.075	568.9	2.32	1.069	567.9	2.23	1.064	566.9	2.14	1.058	566.0
100	2.48	1.087	575.7	2.38	1.081	574.8	2.29	1.076	573.9	2.20	1.071	573.0
110	2.54	1.099	582.3	2.44	1.093	581.5	2.35	1.088	580.7	2.25	1.083	579.9
120	2.60	1.110	588.7	2.50	1.105	587.9	2.40	1.099	587.2	2.30	1.094	586.5
130	2.66	1.121	594.9	2.55	1.115	594.2	2.46	1.110	593.5	2.36	1.105	592.9
140	2.72	1.131	601.1	2.61	1.126	600.4	2.51	1.121	599.8	2.41	1.116	599.2
150	2.77	1.141	607.2	2.66	1.136	606.5	2.56	1.131	605.9	2.46	1.126	605.3
160	2.83	1.151	613.1	2.72	1.146	612.5	2.61	1.141	611.9	2.51	1.136	611.4
170	2.89	1.160	619.0	2.78	1.155	618.4	2.67	1.150	617.9	2.57	1.146	617.4
180	2.94	1.169	624.8	2.83	1.164	624.3	2.72	1.159	623.8	2.62	1.155	623.3
190	2.99	1.178	630.6	2.88	1.173	630.1	2.77	1.168	629.6	2.67	1.164	629.2
200	3.05	1.187	636.2	2.93	1.182	635.8	2.82	1.177	635.3	2.72	1.173	634.9
210	3.10	1.195	641.9	2.98	1.190	641.5	2.87	1.186	641.0	2.76	1.181	640.6
220	3.15	1.204	647.5	3.03	1.199	647.1	2.92	1.194	646.7	2.81	1.190	646.3
230	3.21	1.212	653.2	3.08	1.207	652.8	2.97	1.202	652.4	2.86	1.198	652.0
240	3.26	1.220	658.8	3.13	1.215	658.4	3.01	1.210	658.1	2.90	1.206	657.7
250	3.31	1.227	664.4	3.18	1.223	664.0	3.06	1.218	663.7	2.94	1.214	663.3
260	3.36	1.235	669.9	3.23	1.231	669.6	3.11	1.226	669.2	2.99	1.222	668.9
280	3.47	1.250	680.8	3.33	1.246	680.5	3.20	1.241	680.2	3.08	1.237	679.9
300	3.57	1.265	691.7	3.43	1.260	691.4	3.30	1.256	691.1	3.18	1.251	690.8
320	3.67	1.279	702.6	3.53	1.274	702.3	3.39	1.270	702.0	3.27	1.266	701.7
340	3.77	1.293	713.5	3.62	1.288	713.2	3.48	1.284	713.0	3.36	1.279	712.7
360	3.87	1.306	724.3	3.72	1.301	724.1	3.58	1.297	723.9	3.45	1.293	723.6

	150 [78.5]			155 [80.4]			160 [82.3]			165 [84.1]		
Sat.	1.99	1.038	556.7	1.93	1.035	557.0	1.87	1.032	557.4	1.81	1.030	557.7
90	2.06	1.053	565.0	1.99	1.048	564.0	1.92	1.043	563.1	1.85	1.038	562.1
100	2.12	1.066	572.1	2.04	1.061	571.2	1.97	1.056	570.3	1.90	1.051	569.4
110	2.17	1.078	579.0	2.09	1.073	578.2	2.02	1.068	577.4	1.95	1.063	576.6
120	2.22	1.089	585.7	2.14	1.085	585.0	2.07	1.080	584.2	2.00	1.075	583.4
130	2.27	1.100	592.1	2.19	1.096	591.4	2.12	1.091	590.7	2.05	1.086	590.0
140	2.33	1.111	598.5	2.25	1.107	597.8	2.17	1.102	597.2	2.10	1.097	596.5
150	2.38	1.121	604.7	2.30	1.117	604.1	2.22	1.112	603.5	2.15	1.108	602.9
160	2.43	1.131	610.8	2.35	1.127	610.2	2.27	1.122	609.7	2.20	1.118	609.1
170	2.48	1.141	616.8	2.39	1.137	616.3	2.31	1.132	615.8	2.24	1.128	615.3
180	2.53	1.150	622.8	2.44	1.146	622.3	2.36	1.142	621.8	2.28	1.138	621.3
190	2.57	1.159	628.7	2.48	1.155	628.2	2.40	1.151	627.8	2.32	1.147	627.3
200	2.62	1.168	634.5	2.53	1.164	634.0	2.44	1.160	633.6	2.36	1.156	633.2
210	2.67	1.177	640.2	2.58	1.173	639.8	2.49	1.169	639.4	2.41	1.165	639.0
220	2.71	1.185	645.9	2.62	1.181	645.5	2.53	1.177	645.1	2.45	1.173	644.7
230	2.76	1.194	651.6	2.66	1.189	651.2	2.57	1.185	650.8	2.49	1.181	650.4
240	2.81	1.202	657.3	2.71	1.198	656.9	2.62	1.194	656.5	2.53	1.190	656.1
250	2.85	1.210	662.9	2.75	1.206	662.5	2.66	1.202	662.1	2.58	1.198	661.7
260	2.90	1.217	668.5	2.80	1.213	668.1	2.71	1.209	667.7	2.62	1.205	667.3
280	2.98	1.233	679.6	2.88	1.229	679.2	2.79	1.225	678.9	2.70	1.221	678.5
300	3.07	1.247	690.5	2.97	1.243	690.2	2.87	1.239	689.9	2.78	1.235	689.6
320	3.16	1.261	701.4	3.06	1.257	701.2	2.96	1.254	700.9	2.86	1.250	700.6
340	3.24	1.275	712.4	3.14	1.271	712.2	3.04	1.268	711.9	2.94	1.264	711.7
360	3.33	1.289	723.4	3.22	1.285	723.2	3.12	1.281	722.9	3.02	1.277	722.7
380	3.42	1.302	734.4	3.31	1.298	734.2	3.20	1.294	733.9	3.09	1.290	733.7

Pressure	170 [85.9]			180 [89.4]			190 [92.7]			200 [95.9]		
Temp °F.	v	s	i	v	s	i	v	s	i	v	s	i
Sat.	1.76	1.027	558.1	1.67	1.023	558.8	1.58	1.018	559.4	1.50	1.014	560.0
90	1.78	1.033	561.1	1.67	1.024	559.2	....	.....	.....	....	.....	.....
100	1.83	1.046	568.5	1.72	1.037	566.7	1.62	1.028	564.9	1.52	1.020	563.1
110	1.88	1.059	575.7	1.77	1.050	574.0	1.67	1.041	572.3	1.57	1.033	570.7
120	1.93	1.071	582.6	1.81	1.062	581.1	1.71	1.054	579.6	1.61	1.046	578.1
130	1.98	1.082	589.3	1.86	1.074	587.9	1.75	1.066	586.5	1.65	1.058	585.1
140	2.03	1.093	595.8	1.90	1.085	594.5	1.79	1.077	593.1	1.69	1.069	591.7
150	2.08	1.104	602.2	1.94	1.096	600.9	1.83	1.088	599.7	1.73	1.080	598.4
160	2.13	1.114	608.5	1.99	1.106	607.4	1.87	1.098	606.2	1.77	1.091	605.0
170	2.17	1.124	614.7	2.03	1.116	613.6	1.91	1.108	612.5	1.81	1.101	611.4
180	2.21	1.134	620.8	2.07	1.126	619.7	1.95	1.118	618.7	1.85	1.111	617.7
190	2.25	1.143	626.8	2.11	1.135	625.8	1.99	1.128	624.8	1.89	1.121	623.9
200	2.29	1.152	632.7	2.15	1.144	631.8	2.03	1.137	630.9	1.92	1.130	630.0
210	2.33	1.161	638.5	2.19	1.153	637.7	2.07	1.146	636.9	1.96	1.139	636.0
220	2.37	1.169	644.3	2.23	1.162	643.6	2.11	1.155	642.9	1.99	1.148	642.1
230	2.41	1.177	650.0	2.27	1.170	649.3	2.14	1.163	648.6	2.02	1.156	647.9
240	2.45	1.186	655.7	2.31	1.178	655.0	2.18	1.171	654.3	2.06	1.165	653.6
250	2.50	1.194	661.3	2.35	1.186	660.6	2.22	1.179	659.9	2.10	1.173	659.3
260	2.54	1.202	667.0	2.39	1.194	666.3	2.25	1.187	665.7	2.13	1.181	665.1
280	2.61	1.217	678.2	2.46	1.210	677.6	2.32	1.203	677.0	2.20	1.197	676.4
300	2.69	1.232	689.3	2.54	1.225	688.8	2.40	1.218	688.2	2.27	1.212	687.7
320	2.77	1.246	700.3	2.61	1.239	699.8	2.47	1.232	699.3	2.33	1.226	698.8
340	2.85	1.260	711.4	2.69	1.253	710.9	2.54	1.246	710.4	2.40	1.240	709.9
360	2.92	1.274	722.4	2.76	1.267	721.9	2.61	1.260	721.5	2.47	1.254	721.0
380	2.99	1.287	733.4	2.83	1.280	732.9	2.68	1.273	732.5	2.54	1.267	732.1

	210 [98.9]			220 [101.8]			230 [104.7]			240 [107.4]		
Sat.	1.43	1.010	560.5	1.37	1.007	561.0	1.31	1.003	561.5	1.26	1.000	562.0
110	1.48	1.025	569.0	1.40	1.018	567.3	1.33	1.010	565.7	1.27	1.003	564.0
120	1.52	1.038	576.5	1.44	1.031	574.9	1.37	1.024	573.4	1.31	1.017	571.8
130	1.56	1.050	583.6	1.48	1.043	582.1	1.41	1.036	580.7	1.34	1.030	579.3
140	1.60	1.062	590.4	1.52	1.055	589.1	1.45	1.048	587.8	1.38	1.042	586.5
150	1.64	1.073	597.2	1.55	1.066	596.0	1.48	1.060	594.7	1.42	1.053	593.5
160	1.68	1.084	603.8	1.59	1.077	602.7	1.51	1.071	601.6	1.45	1.065	600.4
170	1.72	1.094	610.3	1.63	1.088	609.2	1.55	1.081	608.2	1.48	1.075	607.1
180	1.76	1.104	616.7	1.66	1.098	615.7	1.58	1.092	614.7	1.51	1.086	613.7
190	1.79	1.114	623.0	1.69	1.108	622.0	1.61	1.102	621.0	1.54	1.096	620.1
200	1.82	1.123	629.1	1.72	1.117	628.2	1.64	1.111	627.3	1.57	1.105	626.4
210	1.86	1.133	635.2	1.76	1.126	634.4	1.68	1.120	633.5	1.61	1.115	632.7
220	1.89	1.142	641.3	1.79	1.135	640.5	1.71	1.129	639.6	1.64	1.124	638.8
230	1.92	1.150	647.2	1.82	1.144	646.4	1.74	1.138	645.6	1.67	1.132	644.8
240	1.96	1.159	652.9	1.86	1.152	652.2	1.78	1.146	651.5	1.70	1.141	650.7
250	1.99	1.167	658.6	1.89	1.161	658.0	1.81	1.155	657.3	1.73	1.149	656.6
260	2.02	1.175	664.4	1.92	1.169	663.8	1.84	1.163	663.2	1.76	1.158	662.5
270	2.05	1.183	670.2	1.95	1.177	669.6	1.87	1.171	669.0	1.79	1.166	668.3
280	2.09	1.191	675.8	1.99	1.185	675.2	1.90	1.179	674.6	1.82	1.174	674.0
300	2.15	1.206	687.2	2.05	1.200	686.7	1.96	1.194	686.2	1.87	1.189	685.6
320	2.21	1.220	698.4	2.11	1.214	697.9	2.02	1.209	697.4	1.93	1.203	696.9
340	2.27	1.234	709.5	2.17	1.228	709.1	2.08	1.223	708.6	1.98	1.218	708.1
360	2.34	1.248	720.6	2.23	1.242	720.2	2.14	1.237	719.7	2.04	1.232	719.3
380	2.41	1.261	731.7	2.29	1.256	731.3	2.19	1.250	730.9	2.09	1.245	730.5
400	2.47	1.274	742.8	2.35	1.269	742.4	2.25	1.263	742.0	2.15	1.258	741.7

Temp., ° F.	Saturation pressure, lb. per sq. in.	Volume of 1 lb., cu. ft.	Weight of 1 cu. ft., lb.	144 Apv'	Temp., ° F.	Saturation pressure, lb. per sq. in.	Volume of 1 lb., cu. ft.	Weight of 1 cu. ft., lb.	144 Apv'
−110	0.758	0.02202	45.42	0.003	90	181.8	0.02714	36.84	0.92
−105	0.947	.02211	45.23	.004	95	197.3	.02734	36.58	1.00
−100	1.176	0.02220	45.04	0.005	**100**	213.8	0.02754	36.32	1.09
− 95	1.450	.02229	44.85	.006	105	231.2	.02774	36.06	1.19
− 90	1.778	.02239	44.66	.007	110	249.6	.02795	35.79	1.29
− 85	2.167	.02248	44.47	.009	115	269.2	.02816	35.51	1.40
− 80	2.626	.02258	44.28	.011	120	289.9	.02839	35.23	1.52
− 75	3.164	0.02268	44.09	0.013	**125**	311.6	0.02862	34.95	1.65
− 70	3.791	.02278	43.89	.016	130	334.6	.02886	34.66	1.79
− 65	4.518	.02288	43.70	.019	135	358.8	.02910	34.36	1.93
− 60	5.358	.02299	43.51	.023	140	384.4	.02936	34.06	2.09
− 55	6.324	.02309	43.31	.027	145	411.3	.02963	33.76	2.26
− 50	7.43	0.02320	43.11	0.032	**150**	439.5	0.0299	33.45	2.43
− 45	8.69	.02331	42.91	.038	155	469.1	.0302	33.13	2.62
− 40	10.12	.02342	42.71	.044	160	500.1	.0305	32.80	2.82
− 35	11.74	.02353	42.50	.051	165	532.6	.0308	32.47	3.04
− 30	13.56	.02364	42.30	.059	170	566.6	.0312	32.13	3.27
− 25	15.61	0.02376	42.09	0.069	**175**	602.2	0.0315	31.8	3.51
− 20	17.91	.02388	41.88	.079	180	639.5	.0318	31.5	3.77
− 15	20.46	.02400	41.67	.091	185	678.4	.0322	31.1	4.05
− 10	23.30	.02412	41.46	.104	190	719.0	.0326	30.7	4.34
− 5	26.46	.02424	41.25	.119	195	761.4	.0330	30.3	4.65
0	29.95	0.02437	41.04	0.135	**200**	805.6	0.0335	29.9	4.99
5	33.79	.02450	40.83	.153	205	851.7	.0340	29.4	5.36
10	38.02	.02463	40.61	.173	210	899.7	.0345	29.0	5.75
15	42.67	.02476	40.39	.196	215	949.6	.0350	28.6	6.16
20	47.75	.02490	40.17	.220	220	1001.4	.0355	28.2	6.59
25	53.30	0.02504	39.95	0.247	**225**	1055.3	0.0361	27.7	7.1
30	59.35	.02518	39.72	.277	230	1111.3	.0368	27.2	7.6
35	65.91	.02532	39.50	.309	235	1169.5	.0376	26.6	8.1
40	73.03	.02547	39.27	.344	240	1229.9	.0384	26.0	8.7
45	80.75	.02562	39.04	.383	245	1292.5	.0393	25.4	9.4
50	89.1	0.02577	38.81	0.425	**250**	1357.4	0.0404	24.8	10.2
55	98.0	.02593	38.57	.471	255	1424.7	.0417	24.0	11.0
60	107.7	.02609	38.33	.520	260	1494.4	.0435	23.0	12.0
65	118.1	.02626	38.09	.574	265	1566.6	.0457	21.8	13.3
70	129.2	.02643	37.85	.632	270	1641.3	.0500	20.0	15.2
75	141.1	0.02660	37.60	0.70	**273.2**	1690.0	0.0678	14.75	21.2
80	153.9	.02678	37.35	.76	.....	.....	.....	.....	.....
85	167.4	.02696	37.10	.84					

	0	1	2	3	4	5	6	7	8	9
100	0000	0004	0009	0013	0017	0022	0026	0030	0035	0039
101	0043	0048	0052	0056	0060	0065	0069	0073	0077	0082
102	0086	0090	0095	0099	0103	0107	0111	0116	0120	0124
103	0128	0133	0137	0141	0145	0149	0154	0158	0162	0166
104	0170	0175	0179	0183	0187	0191	0195	0199	0204	0208
105	0212	0216	0220	0224	0228	0233	0237	0241	0245	0249
106	0253	0257	0261	0265	0269	0273	0278	0282	0286	0290
107	0294	0298	0302	0306	0310	0314	0318	0322	0326	0330
108	0334	0338	0342	0346	0350	0354	0358	0362	0366	0370
109	0374	0378	0382	0386	0390	0394	0398	0402	0406	0410
110	0414	0418	0422	0426	0430	0434	0438	0441	0445	0449
11	0414	0453	0492	0531	0569	0607	0645	0682	0719	0755
12	0792	0828	0864	0899	0934	0969	1004	1038	1072	1106
13	1139	1173	1206	1239	1271	1303	1335	1367	1399	1430
14	1461	1492	1523	1553	1584	1614	1644	1673	1703	1732
15	1761	1790	1818	1847	1875	1903	1931	1959	1987	2014
16	2041	2068	2095	2122	2148	2175	2201	2227	2253	2279
17	2304	2330	2355	2380	2405	2430	2455	2480	2504	2529
18	2553	2577	2601	2625	2648	2672	2695	2718	2742	2765
19	2788	2810	2833	2856	2878	2900	2923	2945	2967	2989
20	3010	3032	3054	3075	3096	3118	3139	3160	3181	3201
21	3222	3243	3263	3284	3304	3324	3345	3365	3385	3404
22	3424	3444	3464	3483	3502	3522	3541	3560	3579	3598
23	3617	3636	3655	3674	3692	3711	3729	3747	3766	3784
24	3802	3820	3838	3856	3874	3892	3909	3927	3945	3962
25	3979	3997	4014	4031	4048	4065	4082	4099	4116	4133
26	4150	4166	4183	4200	4216	4232	4249	4265	4281	4298
27	4314	4330	4346	4362	4378	4393	4409	4425	4440	4456
28	4472	4487	4502	4518	4533	4548	4564	4579	4594	4609
29	4624	4639	4654	4669	4683	4698	4713	4728	4742	4757
30	4771	4786	4800	4814	4829	4843	4857	4871	4886	4900
31	4914	4928	4942	4955	4969	4983	4997	5011	5024	5038
32	5051	5065	5079	5092	5105	5119	5132	5145	5159	5172
33	5185	5198	5211	5224	5237	5250	5263	5276	5289	5302
34	5315	5328	5340	5353	5366	5378	5391	5403	5416	5428
35	5441	5453	5465	5478	5490	5502	5514	5527	5539	5551
36	5563	5575	5587	5599	5611	5623	5635	5647	5658	5670
37	5682	5694	5705	5717	5729	5740	5752	5763	5775	5786
38	5798	5809	5821	5832	5843	5855	5866	5877	5888	5899
39	5911	5922	5933	5944	5955	5966	5977	5988	5999	6010
40	6021	6031	6042	6053	6064	6075	6085	6096	6107	6117
41	6128	6138	6149	6160	6170	6180	6191	6201	6212	6222
42	6232	6243	6253	6263	6274	6284	6294	6304	6314	6325
43	6335	6345	6355	6365	6375	6385	6395	6405	6415	6425
44	6435	6444	6454	6464	6474	6484	6493	6503	6513	6522
45	6532	6542	6551	6561	6571	6580	6590	6599	6609	6618
46	6628	6637	6646	6656	6665	6675	6684	6693	6702	6712
47	6721	6730	6739	6749	6758	6767	6776	6785	6794	6803
48	6812	6821	6830	6839	6848	6857	6866	6875	6884	6893
49	6902	6911	6920	6928	6937	6946	6955	6964	6972	6981

	0	1	2	3	4	5	6	7	8	9
50	6990	6998	7007	7016	7024	7033	7042	7050	7059	7067
51	7076	7084	7093	7101	7110	7118	7126	7135	7143	7152
52	7160	7168	7177	7185	7193	7202	7210	7218	7226	7235
53	7243	7251	7259	7267	7275	7284	7292	7300	7308	7316
54	7324	7332	7340	7348	7356	7364	7372	7380	7388	7396
55	7404	7412	7419	7427	7435	7443	7451	7459	7466	7474
56	7482	7490	7497	7505	7513	7520	7528	7536	7543	7551
57	7559	7566	7574	7582	7589	7597	7604	7612	7619	7627
58	7634	7642	7649	7657	7664	7672	7679	7686	7694	7701
59	7709	7716	7723	7731	7738	7745	7752	7760	7767	7774
60	7782	7789	7796	7803	7810	7818	7825	7832	7839	7846
61	7853	7860	7868	7875	7882	7889	7896	7903	7910	7917
62	7924	7931	7938	7945	7952	7959	7966	7973	7980	7987
63	7993	8000	8007	8014	8021	8028	8035	8041	8048	8055
64	8062	8069	8075	8082	8089	8096	8102	8109	8116	8122
65	8129	8136	8142	8149	8156	8162	8169	8176	8182	8189
66	8195	8202	8209	8215	8222	8228	8235	8241	8248	8254
67	8261	8267	8274	8280	8287	8293	8299	8306	8312	8319
68	8325	8331	8338	8344	8351	8357	8363	8370	8376	8382
69	8388	8395	8401	8407	8414	8420	8426	8432	8439	8445
70	8451	8457	8463	8470	8476	8482	8488	8494	8500	8506
71	8513	8519	8525	8531	8537	8543	8549	8555	8561	8567
72	8573	8579	8585	8591	8597	8603	8609	8615	8621	8627
73	8633	8639	8645	8651	8657	8663	8669	8675	8681	8686
74	8692	8698	8704	8710	8716	8722	8727	8733	8739	8745
75	8751	8756	8762	8768	8774	8779	8785	8791	8797	8802
76	8808	8814	8820	8825	8831	8837	8842	8848	8854	8859
77	8865	8871	8876	8882	8887	8893	8899	8904	8910	8915
78	8921	8927	8932	8938	8943	8949	8954	8960	8965	8971
79	8976	8982	8987	8993	8998	9004	9009	9015	9020	9025
80	9031	9036	9042	9047	9053	9058	9063	9069	9074	9079
81	9085	9090	9096	9101	9106	9112	9117	9122	9128	9133
82	9138	9143	9149	9154	9159	9165	9170	9175	9180	9186
83	9191	9196	9201	9206	9212	9217	9222	9227	9232	9238
84	9243	9248	9253	9258	9263	9269	9274	9279	9284	9289
85	9294	9299	9304	9309	9315	9320	9325	9330	9335	9340
86	9345	9350	9355	9360	9365	9370	9375	9380	9385	9390
87	9395	9400	9405	9410	9415	9420	9425	9430	9435	9440
88	9445	9450	9455	9460	9465	9469	9474	9479	9484	9489
89	9494	9499	9504	9509	9513	9518	9523	9528	9533	9538
90	9542	9547	9552	9557	9562	9566	9571	9576	9581	9586
91	9590	9595	9600	9605	9609	9614	9619	9624	9628	9633
92	9638	9643	9647	9652	9657	9661	9666	9671	9675	9680
93	9685	9689	9694	9699	9703	9708	9713	9717	9722	9727
94	9731	9736	9741	9745	9750	9754	9759	9763	9768	9773
95	9777	9782	9786	9791	9795	9800	9805	9809	9814	9818
96	9823	9827	9832	9836	9841	9845	9850	9854	9859	9863
97	9868	9872	9877	9881	9886	9890	9894	9899	9903	9908
98	9912	9917	9921	9926	9930	9934	9939	9943	9948	9952
99	9956	9961	9965	9969	9974	9978	9983	9987	9991	9996

Base $\epsilon = 2.71828+$

	0	1	2	3	4	5	6	7	8	9
1.0	0.0000	0.0100	0.0198	0.0296	0.0392	0.0488	0.0583	0.0677	0.0770	0.0862
1.1	.0953	.1044	.1133	.1222	.1310	.1398	.1484	.1570	.1655	.1739
1.2	.1823	.1906	.1988	.2070	.2151	.2231	.2311	.2390	.2469	.2546
1.3	.2624	.2700	.2776	.2852	.2927	.3001	.3075	.3148	.3221	.3293
1.4	.3365	.3436	.3507	.3577	.3646	.3716	.3784	.3853	.3920	.3988
1.5	0.4055	0.4121	0.4187	0.4253	0.4318	0.4383	0.4447	0.4511	0.4574	0.4637
1.6	.4700	.4762	.4824	.4886	.4947	.5008	.5068	.5128	.5188	.5247
1.7	.5306	.5365	.5423	.5481	.5539	.5596	.5653	.5710	.5766	.5822
1.8	.5878	.5933	.5988	.6043	.6098	.6152	.6206	.6259	.6313	.6366
1.9	.6419	.6471	.6523	.6575	.6627	.6678	.6729	.6780	.6831	.6881
2.0	0.6931	0.6981	0.7031	0.7080	0.7129	0.7178	0.7227	0.7275	0.7324	0.7372
2.1	.7419	.7467	.7514	.7561	.7608	.7655	.7701	.7747	.7793	.7839
2.2	.7885	.7930	.7975	.8020	.8065	.8109	.8154	.8198	.8242	.8286
2.3	.8329	.8372	.8416	.8459	.8502	.8544	.8587	.8629	.8671	.8713
2.4	.8755	.8796	.8838	.8879	.8920	.8961	.9002	.9042	.9083	.9123
2.5	0.9163	0.9203	0.9243	0.9282	0.9322	0.9361	0.9400	0.9439	0.9478	0.9517
2.6	.9555	.9594	0.9632	0.9670	0.9708	0.9746	0.9783	0.9821	0.9858	0.9895
2.7	.9933	.9969	1.0006	1.0043	1.0080	1.0116	1.0152	1.0188	1.0225	1.0260
2.8	1.0296	1.0332	1.0367	1.0403	1.0438	1.0473	1.0508	1.0543	1.0578	1.0613
2.9	1.0647	1.0682	1.0716	1.0750	1.0784	1.0818	1.0852	1.0886	1.0919	1.0953
3.0	1.0986	1.1019	1.1053	1.1086	1.1119	1.1151	1.1184	1.1217	1.1249	1.1282
3.1	1.1314	1.1346	1.1378	1.1410	1.1442	1.1474	1.1506	1.1537	1.1569	1.1600
3.2	1.1632	1.1663	1.1694	1.1725	1.1756	1.1787	1.1817	1.1848	1.1878	1.1909
3.3	1.1939	1.1969	1.2000	1.2030	1.2060	1.2090	1.2119	1.2149	1.2179	1.2208
3.4	1.2238	1.2267	1.2296	1.2326	1.2355	1.2384	1.2413	1.2442	1.2470	1.2499
3.5	1.2528	1.2556	1.2585	1.2613	1.2641	1.2669	1.2698	1.2726	1.2754	1.2782
3.6	1.2809	1.2837	1.2865	1.2892	1.2920	1.2947	1.2975	1.3002	1.3029	1.3056
3.7	1.3083	1.3110	1.3137	1.3164	1.3191	1.3218	1.3244	1.3271	1.3297	1.3324
3.8	1.3350	1.3376	1.3403	1.3429	1.3455	1.3481	1.3507	1.3533	1.3558	1.3584
3.9	1.3610	1.3635	1.3661	1.3686	1.3712	1.3737	1.3762	1.3788	1.3813	1.3838
4.0	1.3863	1.3888	1.3913	1.3938	1.3962	1.3987	1.4012	1.4036	1.4061	1.4085
4.1	1.4110	1.4134	1.4159	1.4183	1.4207	1.4231	1.4255	1.4279	1.4303	1.4327
4.2	1.4351	1.4375	1.4398	1.4422	1.4446	1.4469	1.4493	1.4516	1.4540	1.4563
4.3	1.4586	1.4609	1.4633	1.4656	1.4679	1.4702	1.4725	1.4748	1.4770	1.4793
4.4	1.4816	1.4839	1.4861	1.4884	1.4907	1.4929	1.4951	1.4974	1.4996	1.5019
4.5	1.5041	1.5063	1.5085	1.5107	1.5129	1.5151	1.5173	1.5195	1.5217	1.5239
4.6	1.5261	1.5282	1.5304	1.5326	1.5347	1.5369	1.5390	1.5412	1.5433	1.5454
4.7	1.5476	1.5497	1.5518	1.5539	1.5560	1.5581	1.5602	1.5623	1.5644	1.5665
4.8	1.5686	1.5707	1.5728	1.5748	1.5769	1.5790	1.5810	1.5831	1.5851	1.5872
4.9	1.5892	1.5913	1.5933	1.5953	1.5974	1.5994	1.6014	1.6034	1.6054	1.6074

To move decimal point n places to right (or left) add (or subtract) n times 2.3026. Thus

$\log_e 425 = 1.4469 + 4.6052 = 6.0521$

$\log_e 0.00425 = 1.4469 - 6.9078 = \bar{6}.5391$

1	2.3026	6	13.8155
2	4.6052	7	16.1181
3	6.9078	8	18.4207
4	9.2103	9	20.7233
5	11.5129		

	0	1	2	3	4	5	6	7	8	9
5.0	1.6094	1.6114	1.6134	1.6154	1.6174	1.6194	1.6214	1.6233	1.6253	1.6273
5.1	1.6292	1.6312	1.6332	1.6351	1.6371	1.6390	1.6409	1.6429	1.6448	1.6467
5.2	1.6487	1.6506	1.6525	1.6544	1.6563	1.6582	1.6601	1.6620	1.6639	1.6658
5.3	1.6677	1.6696	1.6715	1.6734	1.6752	1.6771	1.6790	1.6808	1.6827	1.6845
5.4	1.6864	1.6882	1.6901	1.6919	1.6938	1.6956	1.6974	1.6993	1.7011	1.7029
5.5	1.7047	1.7066	1.7084	1.7102	1.7120	1.7138	1.7156	1.7174	1.7192	1.7210
5.6	1.7228	1.7246	1.7263	1.7281	1.7299	1.7317	1.7334	1.7352	1.7370	1.7387
5.7	1.7405	1.7422	1.7440	1.7457	1.7475	1.7492	1.7509	1.7527	1.7544	1.7561
5.8	1.7579	1.7596	1.7613	1.7630	1.7647	1.7664	1.7681	1.7699	1.7716	1.7733
5.9	1.7750	1.7766	1.7783	1.7800	1.7817	1.7834	1.7851	1.7867	1.7884	1.7901
6.0	1.7918	1.7934	1.7951	1.7967	1.7984	1.8001	1.8017	1.8034	1.8050	1.8066
6.1	1.8083	1.8099	1.8116	1.8132	1.8148	1.8165	1.8181	1.8197	1.8213	1.8229
6.2	1.8245	1.8262	1.8278	1.8294	1.8310	1.8326	1.8342	1.8358	1.8374	1.8390
6.3	1.8405	1.8421	1.8437	1.8453	1.8469	1.8485	1.8500	1.8516	1.8532	1.8547
6.4	1.8563	1.8579	1.8594	1.8610	1.8625	1.8641	1.8656	1.8672	1.8687	1.8703
6.5	1.8718	1.8733	1.8749	1.8764	1.8779	1.8795	1.8810	1.8825	1.8840	1.8856
6.6	1.8871	1.8886	1.8901	1.8916	1.8931	1.8946	1.8961	1.8976	1.8991	1.9006
6.7	1.9021	1.9036	1.9051	1.9066	1.9081	1.9095	1.9110	1.9125	1.9140	1.9155
6.8	1.9169	1.9184	1.9199	1.9213	1.9228	1.9242	1.9257	1.9272	1.9286	1.9301
6.9	1.9315	1.9330	1.9344	1.9359	1.9373	1.9387	1.9402	1.9416	1.9430	1.9445
7.0	1.9459	1.9473	1.9488	1.9502	1.9516	1.9530	1.9544	1.9559	1.9573	1.9587
7.1	1.9601	1.9615	1.9629	1.9643	1.9657	1.9671	1.9685	1.9699	1.9713	1.9727
7.2	1.9741	1.9755	1.9769	1.9782	1.9796	1.9810	1.9824	1.9838	1.9851	1.9865
7.3	1.9879	1.9892	1.9906	1.9920	1.9933	1.9947	1.9961	1.9974	1.9988	2.0001
7.4	2.0015	2.0028	2.0042	2.0055	2.0069	2.0082	2.0096	2.0109	2.0122	2.0136
7.5	2.0149	2.0162	2.0176	2.0189	2.0202	2.0215	2.0229	2.0242	2.0255	2.0268
7.6	2.0281	2.0295	2.0308	2.0321	2.0334	2.0347	2.0360	2.0373	2.0386	2.0399
7.7	2.0412	2.0425	2.0438	2.0451	2.0464	2.0477	2.0490	2.0503	2.0516	2.0528
7.8	2.0541	2.0554	2.0567	2.0580	2.0592	2.0605	2.0618	2.0631	2.0643	2.0656
7.9	2.0669	2.0681	2.0694	2.0707	2.0719	2.0732	2.0744	2.0757	2.0769	2.0782
8.0	2.0794	2.0807	2.0819	2.0832	2.0844	2.0857	2.0869	2.0882	2.0894	2.0906
8.1	2.0919	2.0931	2.0943	2.0956	2.0968	2.0980	2.0992	2.1005	2.1017	2.1029
8.2	2.1041	2.1054	2.1066	2.1078	2.1090	2.1102	2.1114	2.1126	2.1138	2.1150
8.3	2.1163	2.1175	2.1187	2.1199	2.1211	2.1223	2.1235	2.1247	2.1258	2.1270
8.4	2.1282	2.1294	2.1306	2.1318	2.1330	2.1342	2.1353	2.1365	2.1377	2.1389
8.5	2.1401	2.1412	2.1424	2.1436	2.1448	2.1459	2.1471	2.1483	2.1494	2.1506
8.6	2.1518	2.1529	2.1541	2.1552	2.1564	2.1576	2.1587	2.1599	2.1610	2.1622
8.7	2.1633	2.1645	2.1656	2.1668	2.1679	2.1691	2.1702	2.1713	2.1725	2.1736
8.8	2.1748	2.1759	2.1770	2.1782	2.1793	2.1804	2.1815	2.1827	2.1838	2.1849
8.9	2.1861	2.1872	2.1883	2.1894	2.1905	2.1917	2.1928	2.1939	2.1950	2.1961
9.0	2.1972	2.1983	2.1994	2.2006	2.2017	2.2028	2.2039	2.2050	2.2061	2.2072
9.1	2.2083	2.2094	2.2105	2.2116	2.2127	2.2138	2.2148	2.2159	2.2170	2.2181
9.2	2.2192	2.2203	2.2214	2.2225	2.2235	2.2246	2.2257	2.2268	2.2279	2.2289
9.3	2.2300	2.2311	2.2322	2.2332	2.2343	2.2354	2.2364	2.2375	2.2386	2.2396
9.4	2.2407	2.2418	2.2428	2.2439	2.2450	2.2460	2.2471	2.2481	2.2492	2.2502
9.5	2.2513	2.2523	2.2534	2.2544	2.2555	2.2565	2.2576	2.2586	2.2597	2.2607
9.6	2.2618	2.2628	2.2638	2.2649	2.2659	2.2670	2.2680	2.2690	2.2701	2.2711
9.7	2.2721	2.2732	2.2742	2.2752	2.2762	2.2773	2.2783	2.2793	2.2803	2.2814
9.8	2.2824	2.2834	2.2844	2.2854	2.2865	2.2875	2.2885	2.2895	2.2905	2.2915
9.9	2.2925	2.2935	2.2946	2.2956	2.2966	2.2976	2.2986	2.2996	2.3006	2.3016
10.0	2.3026	.....	.....	.....	.....	.....	.....	.....	.....	.....

The following tables give the numerical relations between the various units of pressure, energy, and power. For the calculation of the equivalents the following data are required.

		log			log
1 meter	= **39.37** * in.	1.59517	1 horsepower	= **550** ft. lb./sec.	2.74036
	= 3.28083 ft.	0.51598	1 cheval-vapeur	= **75** kg. m./sec.	1.87506
1 kilogram	= 2.20462 lb.	0.34333	1 poncelet	= **100** kg. m./sec.	2.00000
1 mean calorie	= 4.184 joules	0.62159	g (standard)	= 32.174 ft./sec.^{2}	1.50750
1 atmosphere	= **760** mm. of Hg.	2.88081		= **980.665** cm./sec.^{2}	2.99152

Pressure

Kilograms per sq. cm.	Pounds per sq. in.	Pounds per sq. ft.	Atmospheres	Meters of mercury	Inches of mercury	Feet of water (at 60° F.)
1	14.223 1.55300†	2048.2 3.31137	0.96781 $\bar{1}$.98579	0.73553 $\bar{1}$.86660	28.958 1.46177	32.837 1.51636
0.070307 $\bar{2}$.84700	1	**144*** 2.15836	0.068044 $\bar{2}$.83279	0.051713 $\bar{2}$.71360	2.0360 0.30877	2.3087 0.36336
4.882×10^{-4} $\bar{4}$.68863	6.944×10^{-3} $\bar{3}$.84164	1	4.7253×10^{-4} $\bar{4}$.67442	3.591×10^{-4} $\bar{4}$.55524	0.014139 $\bar{2}$.15041	0.016032 $\bar{2}$.20500
1.0333 0.01421	14.696 1.16721	2116.3 3.32557	1	**0.760** $\bar{1}$.88081	29.921 1.47598	33.929 1.53058
1.3596 0.13340	19.338 1.28640	2784.6 3.44476	1.3158 0.11919	1	**39.37** 1.59517	44.644 1.64976
0.034532 $\bar{2}$.53822	0.49117 $\bar{1}$.69123	70.728 1.84959	0.035364 $\bar{2}$.54856	0.0254 $\bar{2}$.40484	1	1.1340 0.05460
0.030453 $\bar{2}$.48364	0.43315 1.63364	62.374 1.79500	0.029473 $\bar{2}$.46942	0.07349 $\bar{2}$.86623	0.88187 1.94540	1

Energy

Foot-pounds	Meter-kilograms	Mean British thermal units	Gram-calories	Joules	Horsepower-hours	Kilowatt-hours
1	0.13826 $\bar{1}$.14068	0 0012860 $\bar{3}$.10922	0.32405 $\bar{1}$.51062	1.3558 0.13220	5.0505×10^{-7} $\bar{7}$.70333	3.7662×10^{-7} $\bar{7}$.57590
7.2330 0.85932	1	9.302×10^{-3} $\bar{3}$.96854	2.3440 0.36994	**9.80665** 0.99152	3.6530×10^{-6} $\bar{6}$.56265	2.7241×10^{-6} $\bar{6}$.43522
777.64 2.89078	107.51 2.03146	1	252.00 2.40139	1054.3 3.02298	3.9275×10^{-4} $\bar{4}$.59412	2.9288×10^{-4} $\bar{4}$.46668
3.0859 0.48938	0.42664 $\bar{1}$.63006	0.0039683 $\bar{3}$.59861	1	4.184 0.62159	1.5585×10^{-6} 6.19271	1.1621×10^{-6} $\bar{6}$.06528
0.73756 $\bar{1}$.86780	0.10197 $\bar{1}$.00848	9.485×10^{-4} $\bar{4}$.97702	0.2390 $\bar{1}$.37841	1	3.7251×10^{-7} $\bar{7}$.57113	2.7778×10^{-7} $\bar{7}$.44370
$\mathbf{1.98 \times 10^6}$ 6.29667	2.7375×10^5 5.43735	2546.2 3.40588	6.4164×10^5 5.80729	2.6845×10^6 6.42887	1	0.74571 $\bar{1}$.87257
2.6552×10^6 6.42410	3.6710×10^5 5.56478	3414.5 3.53332	8.6044×10^5 5.93472	3.6×10^6 6.55630	1.3410 0.12743	1

Power

Kilowatts	Horsepower	Cheval-vapeur	Poncelet	Met. kg. per sec.	Ft. lb. per sec.	Gr. cal. per sec.	B.t.u. per sec.
1	1.341 0.12743	1.3600 0.13341	1.0197 0.00848	101.97 2.00848	737.56 2.86780	239.01 2.37842	0.9485 $\bar{1}$.97702
0.7457 $\bar{1}$.87257	1	1.0139 0.00598	0.7604 $\bar{1}$.88104	76.04 1.88104	**550** 2.74036	178.23 2.25098	0.7073 $\bar{1}$.84958
0.7355 $\bar{1}$.86659	0.9863 $\bar{1}$.99402	1	**0.75** $\bar{1}$.87506	**75** 1.87506	542.5 2.73438	175.79 2.24500	0.6976 $\bar{1}$.84360
0.980665 $\bar{1}$.99152	1.3151 0.11896	1.333 0.12493	1	**100** 2.00000	723.3 2.85932	234.39 2.36994	0.9301 $\bar{1}$.96854
9.807×10^{-3} $\bar{3}$.99152	0.01315 $\bar{2}$.11896	0.01333 $\bar{2}$.12493	**0.01** $\bar{2}$.00000	1	7.233 0.85932	2.344 0.36994	9.301×10^{-3} $\bar{3}$.96854
1.356×10^{-3} $\bar{3}$.13220	1.818×10^{-3} $\bar{3}$.25964	1.843×10^{-3} $\bar{3}$.26562	1.3825×10^{-3} $\bar{3}$.14068	0.13825 $\bar{1}$.14068	1	0.32405 $\bar{1}$.51062	1.286×10^{-3} $\bar{3}$.10922
4.184×10^{-3} $\bar{3}$.62158	5.610×10^{-3} $\bar{3}$.74902	5.695×10^{-3} $\bar{3}$.75500	4.2664×10^{-3} $\bar{3}$.63006	0.42664 $\bar{1}$.63006	3.0859 0.48938	1	3.9683×10^{-3} $\bar{3}$.59861
1.0543 0.02298	1.4139 0.15042	1.4325 0.15640	1.0751 0.03146	107.51 2.03146	777.64 2.89078	252.00 2.40139	1

* Numbers in black face type indicate exact values by definition.
† The numbers in smaller type are the logarithms of the numbers immediately above them.

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